

Digitized by the Internet Archive
in 2023 with funding from
Boston Public Library



THE COMMONWEALTH OF MASSACHUSETTS
William Francis Galvin, Secretary of the Commonwealth
State Publications and Regulations

REGULATION FILING AND PUBLICATION

1. Regulation Chapter, Number & Heading: **780 CMR**
2. Name of Agency: **MASSACHUSETTS STATE BUILDING CODE
STATE BOARD OF BUILDING REGULATIONS & STANDARDS**
3. This document is reprinted from the Code of Massachusetts Regulations and contains the following:

This is the
**Massachusetts Amendments
to the International Building Code 2009
(BASIC/COMMERCIAL)
EIGHTH EDITION**
as adopted by the
**State Board of Building Regulations and Standards and filed with the
Office of the Secretary of the Commonwealth**

Under the Provisions of Massachusetts General Laws, Chapter 30A, § 6, and Chapter 233, § 75,
this document may be used as evidence of the original documents on file with the Secretary of the Commonwealth.

Compiled as in full force and effect:

8/6/2010

\$20.00

A true copy attest:

A handwritten signature in cursive script, reading "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth



THE COMMONWEALTH OF MASSACHUSETTS
William Francis Galvin, Secretary of the Commonwealth
State Publications and Regulations

REGULATION FILING AND PUBLICATION

1. Regulation Chapter, Number & Heading:

780 CMR

2. Name of Agency:

**MASSACHUSETTS STATE BUILDING CODE
STATE BOARD OF BUILDING REGULATIONS & STANDARDS**

3. This document is reprinted from the Code of Massachusetts Regulations and contains the following:

780 CMR 1	SCOPE AND ADMINISTRATION
780 CMR 2	DEFINITIONS
780 CMR 3	USE OR OCCUPANCY CLASSIFICATION
780 CMR 4	SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY
780 CMR 5	GENERAL BUILDING HEIGHTS AND AREAS
780 CMR 6	TYPES OF CONSTRUCTION
780 CMR 7	FIRE AND SMOKE PROTECTION DEVICES
780 CMR 8	INTERIOR FINISHES
780 CMR 9	FIRE PROTECTION SYSTEMS
780 CMR 10	MEAN OF EGRESS
780 CMR 11	ACCESSIBILITY
780 CMR 12	INTERIOR ENVIRONMENT
780 CMR 13	ENERGY EFFICIENCY
780 CMR 14	EXTERIOR WALLS
780 CMR 15	ROOF ASSEMBLIES AND ROOFTOP STRUCTURES
780 CMR 16	STRUCTURAL DESIGN
780 CMR 17	STRUCTURAL TESTS AND SPECIAL INSTRUCTIONS
780 CMR 18	SOILS AND FOUNDATIONS

Under the Provisions of Massachusetts General Laws, Chapter 30A, § 6, and Chapter 233, § 75, this document may be used as evidence of the original documents on file with the Secretary of the Commonwealth.

Compiled as in full force and effect:

8/6/2010

A true copy attest:

A handwritten signature in cursive script, reading "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth



THE COMMONWEALTH OF MASSACHUSETTS
William Francis Galvin, Secretary of the Commonwealth
State Publications and Regulations

REGULATION FILING AND PUBLICATION

1. Regulation Chapter, Number & Heading:

780 CMR

2. Name of Agency:

**MASSACHUSETTS STATE BUILDING CODE
STATE BOARD OF BUILDING REGULATIONS & STANDARDS**

3. This document is reprinted from the Code of Massachusetts Regulations and contains the following:

780 CMR 19 CONCRETE
780 CMR 20 ALUMINUM
780 CMR 21 MASONRY
780 CMR 22 STEEL
780 CMR 23 WOOD
780 CMR 24 GLASS AND GLAZING
780 CMR 25 GYPSUM BOARD AND PLASTER
780 CMR 26 PLASTIC
780 CMR 27 ELECTRICAL
780 CMR 28 MECHANICAL SYSTEMS
780 CMR 29 PLUMBING SYSTEMS
780 CMR 30 ELEVATORS AND CONVEYING SYSTEMS
780 CMR 31 SPECIAL CONSTRUCTION
780 CMR 32 ENCROACHMENTS INTO THE PUBLIC WAY
780 CMR 33 SAFEGUARDS DURING CONSTRUCTION
780 CMR 34 EXISTING STRUCTURES
780 CMR 35 REFERENCED STANDARDS
780 CMR 36.00 - 109.00 RESERVED

Under the Provisions of Massachusetts General Laws, Chapter 30A, § 6, and Chapter 233, § 75,
this document may be used as evidence of the original documents on file with the Secretary of the Commonwealth.

Compiled as in full force and effect:

8/6/2010

A true copy attest:

A handwritten signature in cursive script, reading "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth



THE COMMONWEALTH OF MASSACHUSETTS
William Francis Galvin, Secretary of the Commonwealth
State Publications and Regulations

REGULATION FILING AND PUBLICATION

1. Regulation Chapter, Number & Heading:

780 CMR

2. Name of Agency:

**MASSACHUSETTS STATE BUILDING CODE
STATE BOARD OF BUILDING REGULATIONS & STANDARDS**

3. This document is reprinted from the Code of Massachusetts Regulations and contains the following:

780 CMR 110 SPECIAL REGULATIONS

SECTION 110.R1: CONCRETE TESTING LABORATORIES LICENSING

SECTION 110.R2: CONCRETE FIELD TESTING TECHNICIAN LICENSING

**SECTION 110.R3: MANUFACTURED BUILDINGS, BUILDING COMPONENTS AND
MOBILE HOMES**

SECTION 110.R4: LICENSING NATIVE LUMBER PRODUCERS

SECTION 110.R5: LICENSING OF CONSTRUCTION SUPERVISORS

**SECTION 110.R6: REGISTRATION AND ENFORCEMENT OF HOME IMPROVEMENT
CONTRACTOR PROGRAM**

**SECTION 110.R7: CERTIFICATION OF INSPECTORS OF BUILDINGS, BUILDING
COMMISSIONERS AND LOCAL INSPECTORS**

780 CMR 111.00 - 114.00: RESERVED

780 CMR 115 APPENDICES

APPENDIX A: EMPLOYEE QUALIFICATIONS

APPENDIX B: BOARD OF APPEALS

APPENDIX C: GROUP U - AGRICULTURAL BUILDINGS

APPENDIX D: FIRE DISTRICTS

Under the Provisions of Massachusetts General Laws, Chapter 30A, § 6, and Chapter 233, § 75,
this document may be used as evidence of the original documents on file with the Secretary of the Commonwealth.

Compiled as in full force and effect:

8/6/2010

A true copy attest:

A handwritten signature in cursive script, reading "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth



THE COMMONWEALTH OF MASSACHUSETTS
William Francis Galvin, Secretary of the Commonwealth
State Publications and Regulations

REGULATION FILING AND PUBLICATION

1. Regulation Chapter, Number & Heading:

780 CMR

2. Name of Agency:

**MASSACHUSETTS STATE BUILDING CODE
STATE BOARD OF BUILDING REGULATIONS & STANDARDS**

3. This document is reprinted from the Code of Massachusetts Regulations and contains the following:

APPENDIX E:	SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS
APPENDIX F:	RODENTPROOFING ADOPTED IN ITS ENTIRETY
APPENDIX G:	FLOOD-RESISTANT CONSTRUCTION
APPENDIX H:	SIGNS
APPENDIX I:	PATIO COVERS
APPENDIX J:	GRADING
APPENDIX K:	ADMINISTRATIVE PROVISIONS
APPENDIX AA:	STRETCH ENERGY CODE

Under the Provisions of Massachusetts General Laws, Chapter 30A, § 6, and Chapter 233, § 75,
this document may be used as evidence of the original documents on file with the Secretary of the Commonwealth.

Compiled as in full force and effect:

8/6/2010

A true copy attest:

A handwritten signature in cursive script that reads "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth

**780 CMR THE MASSACHUSETTS STATE BUILDING CODE - EIGHTH EDITION
PREFACE**

Adoption

The Massachusetts Board of Building Regulations and Standards (BBRS) is responsible for the promulgation of the State Building Code. The Code is comprised of two volumes: (1) base, and (2) one- and two-family and are codified as title 780 of the Code of Massachusetts Regulations.

The *Base Code* consists of the:

- 2009 International Building Code,*
- 2009 International Energy Conservation Code,*
- 2009 International Mechanical Code,*
- 2009 International Existing Building Code,*
- Massachusetts amendments to these codes, and
- Massachusetts Special Regulations 780 CMR 110.R1 through R7.

The *One- and Two-Family Dwellings Code* is based on the 2003 *International Residential Code* with Massachusetts embedded amendments.

Effective Dates

Base Code: effective August 6, 2010 (Eighth Edition) with a concurrency period of six months, at which time the 7th edition of the Base volume is retired and the Eighth edition is the only base volume in effect. It is important to keep in mind that building permit applications submitted after the end of the concurrency period shall comply with the Eighth edition.

One- and Two-Family Dwellings Code: effective April 1, 2007 (7th Edition).

Purchase

The 2009 International codes can be purchased from the International Code Council, Inc via www.iccsafe.org. The *Base Code* MA amendments and Special Regulations and the entire *One- and Two-family Dwellings Code* can be purchased at the State Bookstore (617-727-2834). In addition an unofficial copy of the amendments of the *Base Code* and the Special MA regulations can be found at www.mass.gov/dps.

Advisory Committees

Several committees, endorsed by the BBRS, contributed significant time and effort in the creation of the MA amendments contained in the *Base Code*. The BBRS is indebted to their civic service for what is hoped to be a *Base Code* that works well for all the regulated and enforcement communities in the Commonwealth. The Eighth edition committees are:

- Chapter 34,
- Energy,
- Fire Protection and Fire Prevention,
- Geotechnical, and
- Structural (formerly Loads and Seismic)

The members of each committee can be found at www.mass.gov/dps.

Supplementary Information

The Department of Public Safety website www.mass.gov/dps contains code and BBRS related information including but not limited to:

- Relevant Massachusetts General Laws for easy reference
- FAQs including links to code related reference materials
- Forms (applications for building permits, appeals, licenses, etc.)

Your feedback

The BBRS looks for feedback on what works well and what does not work so well with respect to your use of the MA state building code and processes associated with it. If you have thoughts on what can be improved please formulate them in an email to mike.guigli@state.ma.us.

NON-TEXT PAGE

Table of Contents

	<u>Page</u>
CHAPTER 1: SCOPE AND ADMINISTRATION	11
CHAPTER 2: DEFINITIONS	27
CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION	29
CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY	33
CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS	41
CHAPTER 6: TYPES OF CONSTRUCTION	43
CHAPTER 7: FIRE AND SMOKE PROTECTION DEVICES	45
CHAPTER 8: INTERIOR FINISHES	47
CHAPTER 9: FIRE PROTECTION SYSTEMS	49
CHAPTER 10: MEANS OF EGRESS	65
CHAPTER 11: ACCESSIBILITY	67
CHAPTER 12: INTERIOR ENVIRONMENT	69
CHAPTER 13: ENERGY EFFICIENCY	71
CHAPTER 14: EXTERIOR WALLS	75
CHAPTER 15: ROOF ASSEMBLIES AND ROOFTOP STRUCTURES	77
CHAPTER 16: STRUCTURAL DESIGN	79
CHAPTER 17: STRUCTURAL TESTS AND SPECIAL INSTRUCTIONS	89
CHAPTER 18: SOILS AND FOUNDATIONS	91
CHAPTER 19: CONCRETE	101
CHAPTER 20: ALUMINUM	103
CHAPTER 21: MASONRY	105
CHAPTER 22: STEEL	107
CHAPTER 23: WOOD	109
CHAPTER 24: GLASS AND GLAZING	111
CHAPTER 25: GYPSUM BOARD AND PLASTER	113
CHAPTER 26: PLASTIC	115
CHAPTER 27: ELECTRICAL	117
CHAPTER 28: MECHANICAL SYSTEMS	119

Table of Contents

	<u>Page</u>
CHAPTER 29: PLUMBING SYSTEMS	121
CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS	123
CHAPTER 31: SPECIAL CONSTRUCTION	125
CHAPTER 32: ENCROACHMENTS INTO THE PUBLIC WAY	129
CHAPTER 33: SAFEGUARDS DURING CONSTRUCTION	131
CHAPTER 34: EXISTING STRUCTURES	133
CHAPTER 35: REFERENCED STANDARDS	147
(780 CMR 36.00 through 109.00: RESERVED)	149
780 CMR 110.00: SPECIAL REGULATIONS	251
Section 110.R1: Concrete Testing Laboratories Licensing	251
Section 110.R2: Concrete Field Testing Technician Licensing	253
Section 110.R3: Manufactured Buildings, Building Components and Mobile Homes	255
Section 110.R4: Licensing Native Lumber Producers	271
Section 110.R5: Licensing of Construction Supervisors	273
Section 110.R6: Registration and Enforcement of Home Improvement Contractor Program	283
Section 110.R7: Certification of Inspectors of Buildings, Building Commissioners and Local Inspectors	285
(780 CMR 111.00 through 114.00: RESERVED)	291
CHAPTER 115: APPENDICES	301
Appendix A: Employee Qualifications	301
Appendix B: Board of Appeals	301
Appendix C: Group U - Agricultural Buildings	301
Appendix D: Fire Districts	301
Appendix E: Supplementary Accessibility Requirements	301
Appendix F: Rodentproofing Adopted in its Entirety.	301
Appendix G: Flood-resistant Construction	301
Appendix H: Signs	305
Appendix I: Patio Covers	305
Appendix J: Grading	305
Appendix K: Administrative Provisions	305
Appendix AA: Stretch Energy Code	305

(PAGES 3 THROUGH 10 ARE RESERVED FOR FUTURE USE)

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 1: SCOPE AND ADMINISTRATION

101.1 Replace as follows:

101.1 Adoption and Title. The Board of Building Regulations and Standards (BBRS) adopts and incorporates by reference, the *International Building Code*, 2009 edition (IBC), including Appendices A through J. The *International Building Code* together with modifications as set forth, shall collectively comprise the *Massachusetts State Building Code* (780 CMR), Eighth Edition, Base Volume, and referred to as “this code”.

101.1.1 Add subsection:

101.1.1 Appendix AA and Special Regulations. BBRS also adopts and incorporates by reference the *International Energy Conservation Code*, 2009 edition (IECC) with modifications as Appendix AA. Special Regulations unique to Massachusetts are found at 780 CMR 110.R1 through 110.R7.

101.2 Revise to read as follows:

101.2 Scope. This code shall be the building code for all towns, cities, state agencies or authorities in accordance with M.G.L. c. 143, § 94. The provisions of this code and other referenced specialized codes shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures, and residences with five or fewer occupants that are operated or licensed by the Massachusetts Department of Developmental Services shall comply with 780 CMR One- and Two-family Dwellings.

101.2.1 Delete this subsection.

101.4 Replace as follows and add Notes 1. through 4.:

101.4 Referenced Codes. Referenced codes include the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations listed in 101.4.1 through 101.4.12 and shall be considered part of this code to the prescribed extent of each such reference.

Note 1. Work regulated by the specialized codes of M.G.L. c. 143, § 96 shall be designed, installed and inspected by individuals authorized to do so in accordance with the specialized codes. However, the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations on work governed by this code shall be subject to inspection by the *building official*.

Note 2. Work regulated by the Architectural Access Board regulations (521 CMR) shall be enforced by the *building official*. See M.G.L. c. 22, § 13A.

Note 3. The design and construction requirements of bunkers and magazines for the storage of explosive materials, flammable/combustible liquids and chemical process safety, shall default to the specific requirements of 527 CMR and are not enforceable by the *building official* but rather by the head of the fire department or his/her designee.

Note 4. Work regulated by the Board of Sheet Metal Regulations shall be enforced by the *building official*. See M.G.L. c. 13, § 102.

101.4.1 Revise to read as follows:

101.4.1 Gas and Fossil Fuel Burning Appliances. Reference to the *International Fuel Gas Code* shall be considered reference to the Board of State Examiners of Plumbers and Gas Fitters regulations at 248 CMR. Gas fired appliances are governed by the Board of State Examiners of Plumbers and Gas Fitters. Oil fired appliances are governed by the Board of Fire Prevention Regulations at 527 CMR 4.00: *Oil Burning Equipment*.

1.00: continued

101.4.3 Revise to read as follows:

101.4.3 Plumbing. Reference to the *International Plumbing Code* shall be considered reference to the Board of State Examiners of Plumbers and Gas Fitters regulations at 248 CMR. For sewerage disposal or water connections also *see* 310 CMR 15.00: *The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage* and 314 CMR 3.00: *Surface Water Discharge Permit Program*, 5.00: *Ground Water Discharge Permit Program* and 20.00: *Reclaimed Water Permit Program and Standards*.

101.4.4 Revise to read as follows:

101.4.4 Property Maintenance. Reference to the *International Property Maintenance Code* shall be considered reference to this code, the specialized codes of M.G.L. c. 143, § 96, and 105 CMR 410.000: *Minimum Standards of Fitness for Human Habitation (State Sanitary Code, Chapter II)*.

101.4.5 Revise to read as follows:

101.4.5 Fire Prevention. Reference to the International Fire Code (IFC) or International Mechanical Code (IMC) for fire prevention issues shall be considered reference to the Board of Fire Prevention Regulations at 527 CMR. If 527 CMR does not address an issue covered by the IFC or IMC, then that said reference code shall apply. If a conflict regarding fire prevention requirements exists between 527 CMR and 780 CMR the more stringent standard shall apply.

Note: building code requirements in the IFC and IMC are made a part of 780 CMR and are enforceable by the *building official*.

101.4.6 Revise to read as follows:

101.4.6 Energy. The provisions of the *International Energy Conservation Code*, 2009 edition, with Massachusetts Amendments shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Add subsection:

101.4.7 Architectural Access. *See* the Architectural Access Board regulations at 521 CMR.

101.4.8: Add subsection:

101.4.8 Environmental Protection. *See* the Department of Environmental Protection regulations at 310 CMR and the Division Water Pollution Control regulations at 314 CMR.

101.4.9 Add subsection:

101.4.9 Elevators. *See* the Massachusetts Board of Elevator Regulations at 524 CMR.

101.4.10 Add subsection:

101.4.10 Electrical. Reference to the International Electrical Code shall be considered reference to 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*.

101.4.11 Add subsection:

101.4.11 Duct Work and Sheet Metal. *See* the Board of Examiners of Sheet Metal Workers regulations at 271 CMR.

101.4.12 Add subsection:

101.4.12 International Residential Code. Reference to the *International Residential Code for One- and Two-Family Dwellings* shall be considered reference to 780 CMR 51.00 through 120.00, (One-and Two-family Dwellings regulations).

1.00: continued

101.5 Add subsection:

101.5 BBRS Advisory Committees. Organization and duties of technical advisory committees to the BBRS may be viewed on the Department of Public Safety website (www.mass.gov/dps).

102.2 Revise to read as follows:

102.2 Other Laws. The provisions of this code shall not nullify any provision of state or federal law. Massachusetts General Laws (M.G.L.s) and the Code of Massachusetts Regulations (CMRs) are often referenced in this code. It is the code user's responsibility to determine all applicable laws and regulations relevant to sections in this code. For example, care facilities licensed or operated by Massachusetts agencies often have CMRs with building requirements beyond this code for buildings licensed or operated by the respective agency.

102.2.1 Add subsection:

102.2.1 DDS Facilities. Additional building features required by the Massachusetts Department of Developmental Services (DDS) do not change the classification of residences operated or licensed by DDS as dwellings subject to the 780 CMR One and Two-family Dwellings.

102.2.2 Add subsection:

102.2.2 Municipal Bylaws or Ordinances. When provisions of this code conflict with municipal bylaws and ordinances, this code shall govern unless the bylaws or ordinances were promulgated in accordance with M.G.L. c. 143, § 98.

102.6 Revise to read as follows:

102.6 Existing Structures. The legal occupancy of any structure existing on the date of adoption of this code shall be *permitted* to continue without change, except as is specifically covered in this code or as deemed necessary by the *building official* for the general safety and welfare of the public.

102.6.1 Add subsection:

102.6.1 Laws in Effect. Unless specifically provided otherwise in this code, and narrow to the provisions of this code, any existing building or structure shall meet and shall be presumed to meet the provisions of the applicable laws, codes, rules or regulations, bylaws or ordinances in effect at the time such building or structure was constructed or altered and shall be allowed to continue to be occupied pursuant to its use and occupancy, provided that the building or structure shall be maintained by the owner in accordance with this code. Also *see* Chapter 34.

102.6.2 Add subsection:

102.6.2 Laws Not in Use. In cases where applicable codes, rules or regulations, bylaws or ordinances were not in use at the time of such construction or alteration, the building or structure shall be maintained by the owner in accordance with this code.

102.6.3 Add subsection:

102.6.3. Less Stringent. In cases where the provisions of this code are less stringent than the applicable codes, rules or regulations, bylaws or ordinances at the time of such construction or substantial alteration, the applicable provisions of this code shall apply, providing such application can be reasonably demonstrated to not result in danger to the public, as determined by the *building official*.

102.6.4 Add subsection:

102.6.4 Existing Means of Egress, Lighting and Ventilation. The *building official* shall cite the following condition in writing as a violation and order the abatement within a time frame deemed necessary by the *building official* to make the building environment safe, healthy or otherwise comply with this code.

1. Less than the required number of means of egress.

1.00: continued

2. Egress components with insufficient width or so arranged to be unsafe or inadequate, including signage and lighting.

3. Unsafe lighting and ventilation.

The *building official* shall declare a building or structure unsafe in accordance with section 116.0 when, in the *building official's* opinion, means of egress are hazardous or dangerous. Where full compliance for means of egress, lighting and ventilation are not practical, the *building official* may accept compliance alternatives, engineering, or other evaluations that adequately address the deficiency. Also see Existing Hazardous Conditions in Chapter 34.

103.1 Replace as follows:

103.1 Municipal and State Enforcement. This code shall be enforced, and enforcement officials shall be appointed, in accordance with M.G.L. c. 143, §§ 3 and 3A and M.G.L. c. 22. Reference to The Department of Building Safety shall be considered reference to the *building official*.

103.2 Delete this section

103.3 Delete this section.

104.1 Replace to read as follows:

104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code in accordance with M.G.L. c. 143.

104.4.1. Add subsection:

104.4.1 Coordination of Inspections. Whenever in the enforcement of this code, or another code or ordinance, the responsibility of more than one enforcement official of the jurisdiction is involved, it shall be the duty of the enforcement officials involved to coordinate their inspections and administrative orders as fully as practicable so that the owners and occupants of the building or structure shall not be subjected to visits by numerous inspectors or multiple or conflicting orders. Whenever an enforcement official observes an apparent or actual violation not within the official's authority, the official shall report the findings to the official having jurisdiction.

104.8 Replace as follows:

104.8 Liability. All claims of liability relative to *building officials* shall be governed by M.G.L. c. 258.

104.10 Revise to read as follows:

104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the *building official* and a copy forwarded to the BBRS within seven days. A *building official* may seek assistance from the district's state building inspector for modifications.

104.10.1 Add subsection:

104.10.1 Areas Prone to Flooding. The *building official* shall not grant modifications to any provision related to areas prone to flooding as established by this code without the granting of a variance to such provisions by the building code appeals board. Also, no variance to requirements of this code can be solely utilized to argue for lawful construction/reconstruction where such construction/reconstruction would conflict with requirements of M.G.L. c. 131, § 40: *Removal, Fill, Dredging or Altering of Land Bordering Waters* (the Wetlands Protection Act), and/or 310 CMR and 314 CMR, as applicable.

1.00: continued

104.10.2 Add subsection:

104.10.2 Matters Not Provided For. In recognition of the inherent difficulty of drafting a functional code that contemplates every situation that may arise in the area of building safety, this section provides the *building official*, the building code appeals board, or the BBRS itself, with reasonable discretion to ensure that all life safety issues that may arise in the enforcement of this code may be appropriately addressed. Matters not specifically provided for in this code regarding structural, egress, fire, energy, sanitary or other requirements essential to occupant safety shall be determined by the *building official* or, in the case of an appeal, the building code appeals board. If this provision is used, the *building official* shall notify the BBRS in writing within seven days of such determination. For highly specialized buildings and structures that conform to unique code requirements or nationally recognized standards not required in this code, *registered design professionals* shall provide sufficient information to the *building official* to support their approval. For fire protection design, *see* Chapter 9.

105.1 Replace as follows:

105.1 Required. It shall be unlawful to construct, reconstruct, alter, repair, remove or demolish a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment for which provision is made or the installation of which is regulated by this code without first filing a written application with the *building official* and obtaining the required *permit*.

105.1.1 Delete this subsection.

105.1.2 Delete this subsection.

105.2 Replace as follows:

105.2 Work Exempt from Permit. Except for activities which may require a *permit* pursuant to other laws, by-laws, rules and the specialized codes of M.G.L. c. 143, § 96, a building *permit* is not required for the following activities:

1. One story detached accessory buildings used as tool or storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet.
2. Fences six feet in height or less.
3. Retaining walls which retain less than four feet of unbalanced fill.
4. *Ordinary repairs* as defined in Chapter 2.00 and 9.00.
5. Greenhouses covered exclusively with plastic film intended for agricultural use.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Swings and other playground equipment.

105.2.1 Replace and add note as follows:

105.2.1 Emergency Repairs. Where equipment replacements and repairs governed by this code must be performed in an emergency situation, the *permit* application shall be submitted within the next working business day to the *building official*.

Note: Pursuant to the terms of the specialized codes of M.G.L. c. 143, § 96, this exemption might not apply to emergency repairs conducted under those specialized codes.

105.2.2 Delete this subsection.

105.2.3 Delete this subsection.

105.3 Replace as follows:

105.3 Application for Permit. To obtain a *permit*, the applicant shall file a *permit* application on a form furnished by the *building official* for that purpose. Standard application forms, along with application forms that some municipalities use, can be found at www.mass.gov/dps. Such applications shall at a minimum:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitively locate the proposed building or work.

1.00: continued

3. Indicate the use and occupancy for which the proposed work is intended. If the work involves a care facility or residence licensed by a State agency, indicate the agency name and appropriate licensing regulation on the permit. For example: Department of Developmental Services, 115 CMR.
4. Be accompanied by *construction documents* and other information as required in section 107. Construction documents shall list any additional building features required by a Massachusetts state agency for its facilities that go beyond the requirements in this code. Any additional building features required by the Massachusetts Department of Developmental Services shall not result in a change in the classification of a DDS operated or licensed residences for five or fewer occupants and their compliance with the 780 CMR *One- and Two-family Dwellings*.
5. State the valuation of the proposed work. The *building official* has authority to request from the applicant a detailed substantiation of the valuation.
6. Be signed by the applicant and the owner or the applicant and the owner's authorized agent.
7. Give such other data and information as required by the *building official* in accordance with this code.

105.3.1 Revise to read as follows:

105.3.1 Action on Application. The *building official* shall examine or cause to be examined applications for *permits* and amendments, and take action, within 30 days of filing. If the application or the *construction documents* do not conform to the requirements of pertinent laws, the *building official* shall reject such application in writing, to the applicant, stating the reasons. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and applicable laws and ordinances, the *building official* shall issue a *permit* forthwith or as soon as practicable.

105.3.2.2 Add subsection:

105.3.1.2 Other Requirements. The following requirements must be satisfied before a building *permit* is issued:

1. **Zoning:** in accordance with M.G.L. c. 40A or St. 1956, c. 665.
2. **Railroad Right-of-way:** in accordance with M.G.L. c. 40, § 54A.
3. **Water Supply:** in accordance with M.G.L. c. 40, § 54; also refer to DEP regulations 310 CMR 22.00: *Drinking Water* and/or 310 CMR 36.00: *Massachusetts Water Resources Management Program*, when applicable.
4. **Wastewater:** in accordance with 310 CMR 15.00: *The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage*, and 314 CMR 3.00: *Surface Water Discharge Permit Program*, 5.00: *Ground Water Discharge Permit Program*, 7.00: *Sewer System Extension and Connection Permit Program* and 20.00: *Reclaimed Water Permit Standards Program*.
5. **Debris Removal:** in accordance with M.G.L. c. 40, § 54 and M.G.L. c. 111, § 150A; also refer to DEP Regulations 310 CMR 7.09(2) and 310 CMR 7.15, when applicable.
6. **Workers Compensation Insurance:** in accordance with M.G.L. c. 152, § 25C(6).
7. **Hazards to Air Navigation:** in accordance with M.G.L. c. 90, § 35B.

105.8 Add section:

105.8 Notice of Start. The *building official* shall be notified at least 24-hours before work starts.

105.9 Add section and subsections:

105.9 Independent Structural Engineering Review.

105.9.1 Condition for Permit. As a condition for the issuance of a building *permit*, the structural design of the following described structures shall be reviewed by a *registered design professional* to verify that the design of the primary structure is conceptually correct and that there are no major errors in the design:

1. *High rise buildings.*
2. Structures of unusual complexity or design as determined by the BBRS. A *building official* may apply to the BBRS for such a determination on a specific structure.

1.00: continued

This requirement shall not preclude an owner from obtaining an independent structural engineering design review of a primary structure, other than those listed in this section.

105.9.2 Review Requirements. The independent structural engineering review shall be in accordance with the guidance document found at www.mass.gov/dps.

105.9.3 Disputes. Disputes between the structural engineer responsible for the design of the *building or structure* and the independent structural engineering reviewer shall be resolved by the BBRS or a board established by the BBRS.

107.1 Delete the text:

‘where required by the statutes of the jurisdiction in which the project is to be constructed’ in the second sentence.

107.1.1 Add subsection:

107.1.1 Professional Seal and Signature. All plans and specifications shall bear a seal and signature of the responsible *registered design professional* in accordance with M.G.L. c. 143, § 54A. See also www.mass.gov/dpl for policy on electronic seal and signature for certain *registered design professionals*.

107.1.2 Add subsection:

107.1.2 Fire Department Review. For *permits* that include work under Chapters 4 or 9, or 34, *construction documents* shall be filed simultaneously with the head of the local fire department and *building official* for review and approval. The fire department shall complete its review within 10-working days after receiving the documents. Upon the fire department’s request, the *building official* may grant one or more extensions up to a total review period maximum of 30-days. If the fire department review is not received within the allowed time frame the *building official* may upon review deem the documents in compliance with Chapters 4 or 9, or 34. If the head of the local fire department disapproves such construction documents, he or she shall notify the *building official* (refer to M.G.L. c. 148, § 28A) in writing citing relevant sections of noncompliance with this code or the section of the referenced standards of Chapter 35.

107.2.5 Revise to read as follows:

107.2.5 Site Plan. The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from *lot lines*, the established street grades and the proposed finished grades and, as applicable, flood hazard zones, high hazard zones, floodways, and *base flood* elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The *building official* is authorized to waive or modify the requirement for a site plan when the application for *permit* is for *alteration* or repair or when otherwise warranted.

107.2.5.1 Revise to read as follows:

107.2.5.1 Base Flood Elevations. Base Flood Elevations shall be determined in accordance with Appendix G.

107.5 Revise to read as follows:

107.5 Retention of Construction Documents. Sets of *approved construction documents* shall be retained by the *building official* in accordance with M.G.L. c. 66, § 8.

107.6 Add section with subsections:

107.6 Construction Control.

107.6.1 General. This section shall apply to the construction controls, professional services and contractor services required for buildings and structures needing *registered design professional* services.

1.00: continued

The following structures are exempt from the requirements of this section:

1. Any *building* containing less than 35,000 cubic feet of enclosed space, measured to the exterior surfaces of walls and *roofs* and to the top of a ground supported floor, or in the case of a crawl space, to the bottom surface of the crawl space. In the case of basement floors or levels, the calculation of enclosed space shall include such spaces. For additions to existing buildings, the volume of enclosed space shall include the entire existing building and all proposed additions.
2. Any one- or two-family dwelling or any accessory building thereto.
3. Any building used exclusively for agricultural purposes. *See* Appendix C for occupancy and other limitations.
4. Retaining walls less than ten feet in height at all points along the wall as measured from the base of the footing to the top of the wall.

Notwithstanding these exemptions, professional engineering services shall be required for activities which are deemed to constitute the practice of engineering as defined in M.G.L. c. 112, § 81D, except as provided in M.G.L. c. 54A and any legally required profession or as provided in M.G.L. c. 112, § 81R. Where work is performed by licensed trades people pursuant to M.G.L. c. 112, § 81R, plans and specifications prepared to document that work shall not be required to bear the seal or signature of a *registered design professional*.

107.6.1.1 Specialized Structures. Telecommunication towers, wind turbine towers, and similar structures are engineered structures and shall be subject to the requirements of section 107.6.

107.6.2 Registered Design Professional Services.

107.6.2.1 Design. All plans, computations and specifications involving new construction, alterations, repairs, expansions or additions or change in use or occupancy of existing buildings shall be prepared by or under the direct supervision of a *registered design professional* and shall bear his or her signature and seal (*see* Section 107.1.1). Said signature and seal shall signify that the plans, computations and specifications meet the applicable provisions of this code and accepted engineering practices. Any alternative means and methods which deviate from prescriptive requirements of this code shall be submitted to the *building official* for *approval* in a narrative form separate from the plans.

107.6.2.2 Construction. The *registered design professionals* who are responsible for the design, plans, calculations, and specifications, their designee or the *registered design professionals* who have been retained for construction phase services, shall perform the following tasks:

1. Review, for conformance to this code and the design concept, shop drawings, samples and other submittals by the contractor in accordance with the requirements of the construction documents.
2. Perform the duties for *registered design professionals* in Chapter 17.
3. Be present at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the work and to determine if the work is being performed in a manner consistent with the construction documents and this code.

The *permit* application shall not be deemed completed until all of the construction documents required by this code have been submitted. Documentation indicating that work complies with the plans and specifications shall be provided at the completion of each phase when required by the *building official*.

107.6.2.3 Structural Tests and Special Inspections. Structural tests and special inspection shall be provided in accordance Chapter 17.

107.6.2.4 Non Structural System Test and Inspection. Tests and inspections of non structural systems shall be performed in accordance with applicable engineering practice standards, referenced standards listed in Chapter 35, or as otherwise specified in this code.

107.6.3 Construction Contractor Services. The actual construction of the work shall be the responsibility of the general contractor as identified on the approved building *permit* and shall involve the following:

1.00: continued

1. Execution of all work in accordance with the approved *construction documents*.
2. Execution and control of all methods of construction in a safe and satisfactory manner in accordance with all applicable local, state, and federal statutes and regulations.
3. Upon completion of the construction, certification in writing to the *registered design professional* in responsible charge that, to the best of the contractor's knowledge and belief, construction has been done in substantial accord with section 107.6 and with all pertinent deviations specifically noted. The *building official* may require a copy of this certification.

107.6.4 On Site Project Representation. When applications for unusual designs or magnitude of construction are filed, or where reference standards require special architectural or engineering inspections, the *building official* may require fulltime project representation by a registered architect or professional engineer in addition to that provided in Section 107.6. The project representative shall keep daily records and submit reports as may be required by the *building official*. Upon completion of the work, the *registered design professional* shall file a final report indicating that the work has been performed in accordance with the approved plans and this code. This on-site project representation requirement shall be determined prior to the issuance of the building *permit* and shall be a requisite for the *permit* issuance. Refusal by the applicant to provide such service shall result in the denial of the *permit*. All fees and costs related to the performance of on-site project representation shall be borne by the owner.

107.6.5 Building Official Responsibility. Nothing contained in section 107.6 shall have the effect of waiving or limiting the *building official's* authority to enforce this code with respect to examination of the contract documents, including plans, computations and specifications, and field inspections.

108.3 Replace to read as follows:

108.3 Fire Department Review. Temporary structures and uses must be approved by the *building official* in consultation with the head of the local fire department.

108.5 Add section:

108.5 State of Emergency. Upon declaration by the Governor of a State of Emergency under St. 1950, c. 639, or of an emergency detrimental to the public health under M.G.L. c. 17, § 2A a building or space within a building may be used as a *temporary emergency use* for purposes of housing and/or caring for persons in accordance with procedures established for such purpose as contained in this code (also *see* Chapter 31).

109.1 Revise to read as follows:

109.1 Payment of Fees. A *permit* shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a *permit* be released until the additional fee, if any, has been paid in the amount established by the applicable governing authority.

109.2 Replace as follows:

109.2 Schedule of Permit Fees. For state building permit fees, *see* 801 CMR 4.02: *Rates*. For municipal building permit fees, refer to the municipality.

109.3 Revise to read as follows:

109.3 Building Permit Valuations. The applicant for a *permit* shall provide an estimated *permit* value at time of application. If, in the opinion of the *building official*, the valuation is underestimated on the application, the *permit* shall be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. Final building *permit* valuation shall be set by the *building official*.

109.4 Revise to read as follows:

109.4 Work Commencing Before Building Permit Issued. Any person who commences any work on a building or structure governed by this code before obtaining the necessary building *permit* shall be in violation of this code and subject to penalties. *See* Section 114.

1.00: continued

109.5 Revise to read as follows:

109.5 Related Fees. Payment of the building *permit* fee shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.

109.6 Delete subsection.

110.3 Revise to read as follows:

110.3 Required Inspections. The *building official* shall conduct inspections during construction intervals sufficient to ensure compliance with the provisions of this code which may include inspections set forth in sections 110.3.1 through 110.3.10 (Also *see* 110.4). The *building official* shall inform the applicant of the required points of inspection at the time of application.

110.3.3 Revise to read as follows:

110.3.3 Lowest Floor Elevation. Per Appendix G, in flood hazard zones and high hazard zones, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Appendix G, shall be submitted to the *building official*.

110.3.11 Add subsection:

110.3.11 Workmanship. All work shall be conducted, installed, protected and completed in a workmanlike and acceptable manner so as to secure the results intended by this code.

110.5 Revise to read as follows:

110.5 Inspection Requests. It shall be the duty of the holder of the building *permit* or their duly authorized agent to notify the *building official* when work is ready for inspection. It shall be the duty of the *permit* holder to provide access to and means for inspections of such work that are required by this code. The *building official* may require the *permit* holder or his representative to attend these inspections.

110.7 Add section and subsection and Table 110 with footnotes:

110.7 Periodic Inspections. The *building official* shall inspect periodically existing buildings and structures and parts thereof in accordance with Table 110 entitled Schedule for Periodic Inspections of Existing Buildings. Such buildings shall not be occupied or continue to be occupied without a valid Certificate of Inspection. Periodic inspections required by this section do not apply to residences operated or licensed by the Massachusetts Department of Developmental Services and subject to 780 CMR *One- and Two-family Dwellings*.

1.00: continued

Table 110
Schedule for Periodic Inspection of Existing Buildings
 (See Chapters 3 and 4 for complete descriptions of use groups.)

Use Group	Use Group	Use Group Description	Minimum Inspections	Maximum Certification Period
A-1	Movie theaters or theaters for performing acts (stage and scenery)	> 400 occupant load ≤ 400 occupant load	Semi – annual Semi – annual	One year One year
A-2	Restaurants, Night Clubs or similar uses	> 400 occupant load ¹ ≤ 400 occupant load ¹	Semi –annual ¹ Annual ¹	One year One year
A-3	Lecture halls, churches and places of religious worship, recreational centers, terminals, etc.	> 400 occupant load ≤ 400 occupant load	Semi –annual Annual	One year One year
A-4	Low density recreation and similar uses.		see note 4.	Five years
A	Special amusement buildings or portions thereof.		see note 4.	One year
E	Educational, day care		see note 4.	One year
I-1	Group home		see note 4.	One year
I-2	Residents incapable of self preservation – hospitals, nursing home, mental hospitals, certain day care facilities.		see note 4.	Two years ³
I-3	Residents restrained – prisons, jails, detention centers, etc.		see note 4.	Two years
I-4	Adult and/or child day care facilities.		see note 4.	One year
R-1	Hotels, motels, boarding houses, etc.		see note 4.	One year
R-1	Detoxification facilities		see note 4.	Two years
R-2 ²	Multi-family		see note 4.	Five years
R-2	Summer Camps for children.		Annual	One year
R-4	Residential care/assisted living facilities		Annual	One year
Any	Facilities licensed by the Alcohol Beverage Control Commission where alcoholic beverages are served and consumed.		Annual as per M.G.L. c. 10, § 74	One year as per M.G.L. c. 10, § 74
Any	House museums (see Chapter 34 for definition)		Annual	One year
Any	Fire escapes, etc. per Chapter 10		Five years	Five years

Notes:

1. When appropriate for A-2 uses, the inspection for the Certificate of Inspection should include and be timed to satisfy the requirements of M.G.L. c. 10, § 74.
2. Building inspections in this use group may be performed by a qualified third party acceptable to the *building official* that includes but is not limited to: *registered design professional* or individuals with qualifications comparable to a *building official* as per section 103.
3. One year for facilities licensed or operated by DMH.
4. Prior to issuance of new certificate.

General Note: It is the responsibility of building “owner”, as defined in Chapter 2, to meet the inspection requirements in this table for continued use and occupancy. The maximum certification period specified in the table is intended to provide administrative flexibility. For uses allowing more than one year maximum certification period, the *building official* may determine the certificate validity term. For example, an R-2 building could be certified for one, two, three, four or five years.

110.7.1 ABCC licensed Establishments. Certificates of inspection for establishments intending to sell alcoholic beverages to be consumed on the premises shall be governed by M.G.L. c. 10, § 74 and the inspection schedule in section 110.7. The *building official* may issue a temporary inspection certificate, once co-signed by the *building official* and by the head of the fire department, effective to a date certain for the establishment.

1.00: continued

111.1 Revise to read as follows:

111.1 Use and Occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the *building official* has issued a certificate of occupancy therefore as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Conformance to all applicable specialized codes of M.G.L. c. 143, § 96 is a requirement of the issuance of the Certificate of Use and Occupancy, including, when applicable, 310 CMR 7.00: *Air Pollution Control*, 310 CMR 15.00: *the State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage*, 310 CMR 22.00: *Drinking Water* or 310 CMR 30.000: *Hazardous Waste*. The certificate shall not be issued until all the work has been completed in accordance with the provision of the approved *permits* and of the applicable codes for which a *permit* is required, except as provided in Section 111.3.

Exception: Certificates of occupancy are not required for work exempt from *permits* under Section 105.2.

111.1.1 Add subsection:

111.1.1 Buildings or Structures Hereafter Altered. A building or structure, in whole or in part, altered to change from one use group to another, to a different use within the same use group, the maximum live load capacity, or the occupancy load capacity shall not be occupied or used until the certificate shall have been issued certifying that the work has been completed in accordance with the provisions of the approved *permits* and of the applicable codes for which a *permit* is required.

111.1.2 Add subsection:

111.1.2 Massachusetts' Licensed Care Facilities. Certificate of occupancy inspections for Massachusetts licensed care facilities, including inspection of special building features required by the licensing agency, shall be limited to verifying compliance with the provisions of this code.

111.2 Add notes 13. and 14.:

13. If the facility is licensed by a State agency, the name of the agency and the name and number of any relevant Code of Massachusetts Regulations (CMR) that apply regarding building features.

14. Prior to issuance of certificate of occupancy, the *building official* shall consult with the head of the fire department.

111.5 Add section and subsections:

111.5 Posting. Buildings and structures shall be posted for occupancy as noted in this section.

111.5.1 Posting of Use and Occupancy. A copy of the certificate of occupancy shall be posted at the main entry or be made readily available for inspection.

111.5.2 Required Egress Posting. A suitably designed placard, approved by the *building official* shall be posted by the owner on all floors of every building and structure, except High Hazard, Factory, and I-3 use occupancies, as defined in Chapter 3. In addition to the per floor requirement, all rooms used as a place of assembly or as an R-1 sleeping space shall have the required egress posting. Said placard shall be securely fastened to the building or structure in a readily visible place, showing exiting paths per floor.

111.5.3 Place of Assembly Posting. A placard suitably designed in contrasting colors and approved by the *building official*, shall be posted by the owner in every room where practicable of every building and structure and part thereof designed for use as a place of public assembly (use groups A). Said placard shall designate all of the occupant loads approved for each configuration within each room or space.

1.00: continued

111.5.4 Replacement of Posted Signs. All posting signs shall be furnished by the owner and shall be of permanent design; they shall not be removed or defaced, and if lost, removed or defaced, shall be immediately replaced.

111.5.5 Periodic Posting Inspection. The *building official* may periodically inspect all existing buildings and structures except one and two family dwellings for compliance with this code in respect to posting; or he may accept the report of such inspections from a *registered design professional* or others certified by the BBRS; and such inspections and reports shall specify any violation of the posting requirements of this code.

112 SERVICE UTILITIES Reserved.

113.1 Replace as follows:

113.1 General. Appeals of orders, decisions, determinations and failures to act made by any state or local agency or any person or state or local agency charged with the administration or enforcement of the state building code or any of its rules and regulations, except the specialized codes of M.G.L. c. 143, § 96 relative to the application and interpretation of this code shall be addressed by the building code appeals board in accordance with M.G.L. c. 143, § 100.

113.2 Limitations on Authority. Reserved.

113.3 Qualifications. Reserved.

113.4 Add section and subsections:

113.4 Local and Regional Boards of Appeals.

113.4.1 General. If a city, region or town had not duly established by ordinance or bylaw or otherwise a local or regional building code board of appeals prior to January 1, 1975, said city, region or town may establish a local or regional board of appeals in accordance with section 113.0, referred to as the local board of appeals, consisting of not less than three nor more than five members appointed by the chief administrative officer of the city, region or town. Any appeal originating in a city or town that has a local board must be heard by the local board before being heard by the state building code appeals board.

113.4.2 Review. Any person, including the State Building Code Appeals Board, aggrieved by a decision of the local board of appeals, whether or not a previous party to the decision, or any municipal officer or official board of the municipality, may, not later than 45 days after the mailing of the decision of the local board, apply to the State Building Code Appeals Board for a hearing *de novo* before the State Board, in accordance with section 113.

113.4.3 Qualifications of Local Board Members. Each member of a local board of appeals established under M.G.L. c. 143, § 100 shall have had at least five years experience in the construction, alteration, repair and maintenance of building and building codes. At least one member shall be a registered structural or civil professional engineer and one member a licensed registered architect.

113.4.4 Chairman of Local or Regional Board. The board shall select one of its members to serve as chairman and a detailed record of all proceedings shall be kept on file in the building department.

113.4.5 Absence of Members. During the absence of a member of a local board of appeals for reason of disability or disqualification, the chief administrative officer of the city, region or town shall designate a substitute who shall meet the qualifications as outlined in section 113.0.

114.1 Revise to read as follows:

114.1 Unlawful Acts. It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, move, remove, demolish, occupy or change the use or occupancy of any building, structure or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

1.00: continued

114.2.1 Add subsection:

114.2.1 Notice Service and Content. Every notice or order authorized pursuant to 114.2 shall be in writing and shall be served on the person responsible:

1. Personally, by any person authorized by the *building official*; or
2. By any person authorized to serve civil process by leaving a copy of the order or notice at the responsible party's last and usual place of business or abode; or
3. By sending the party responsible or their agent authorized to accept service of process in the Massachusetts a copy of the order by registered or certified mail return receipt requested, if he is within the Massachusetts; or
4. If the responsible party's last and usual place of business or abode is unknown, by posting a copy of this order or notice in a conspicuous place on or about the premises in violation and by publishing it for at least three out of five consecutive days in one or more newspapers of general circulation wherein the building or premises affected is situated.

114.3 Revise to read as follows:

114.3 Enforcement. Violations to this code shall be enforced in accordance with the applicable provisions of M.G.L. c. 143, §§ 6 through 10, M.G.L. c. 148, and M.G.L. c. 148A.

114.4 Revise to read as follows:

114.4 Violation Penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure, or makes a change of use in violation of the *approved construction documents* or directive of the *building official*, or of a *permit* or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

116 Revise the entire section to read as follows:

116.1 General. The provisions of this section are established by M.G.L. c. 143, §§ 3, 3A, and 59.

116.2 Inspection. The *building official* immediately upon being informed by report or otherwise that a *building* or other *structure* or anything attached thereto or connected therewith is dangerous to life or limb or that any *building* in that city or town is unused, uninhabited or abandoned, and open to the weather, shall inspect the same; and he shall forthwith in writing notify the owner to remove it or make it safe if it appears to him to be dangerous, or to make it secure if it is unused, uninhabited or abandoned and open to the weather. If it appears that such *building* or *structure* would be especially unsafe in case of fire, it shall be deemed dangerous within the meaning hereof, and the *building official* may affix in a conspicuous place upon its exterior walls a notice of its dangerous condition, which shall not be removed or defaced without authority from him.

116.3 Removal or Making Structure Safe. Any person so notified shall be allowed until 12:00 P.M. of the day following the service of the notice in which to begin to remove such *building* or *structure* or make it safe, or to make it secure, and he shall employ sufficient labor speedily to make it safe or remove it or to make it secure; but if the public safety so requires and if the mayor or selectmen so order, the *building official* may immediately enter upon the *premises* with the necessary workmen and assistants and cause such unsafe structure to be made safe or demolished without delay and a proper fence put up for the protection of passers-by, or to be made secure.

116.4 Failure to Remove or Make Structure Safe, Survey Board, Survey Report. If an owner of such unsafe structure refuses or neglects to comply with the requirements of such notice within the specified time limit, and such *structure* is not made safe or taken down as ordered therein, a careful survey of the *premises* shall be made by a board consisting; in a city, of a city engineer, the head of the fire department, as such term is defined in M.G.L. c. 148, § 1, and one disinterested person to be appointed by the *building official*; and, in a town of a surveyor, the head of the fire department and one disinterested person to be appointed by the *building official*. In the absence of any of the above officers or individuals, the mayor or selectmen shall designate one or more officers or other suitable persons in place of the officers so named as members of said board. A written report of such survey shall be made, and a copy thereof served on such owner.

1.00: continued

116.5 Removal of Dangerous or Abandoned Structures. If such survey report as outlined in section 116.4 declares such *structure* to be dangerous or to be unused, uninhabited or abandoned, and open to the weather, and if the owner continues such refusal or neglect, the *building official* shall cause it to be made safe or taken down or to be made secure; and, if the public safety so requires, said *building official* may at once enter the *structure*, the land on which it stands or the abutting land or *buildings*, with such assistance as he may require, and secure the same; and may remove and evict, under the pertinent provisions of M.G.L. c. 239, or otherwise, any tenant or occupant thereof; and may erect such protection for the public by proper fence or otherwise as may be necessary, and for this purpose may close a public highway. In the case of such demolition, the said *building official* shall cause such *lot* to be leveled to conform to adjacent grades with inorganic fill. The costs and charges incurred shall constitute a lien upon the land upon which the *structure* is located, and shall be enforced in an action of contract; and such owner shall, for every day's continuance of such refusal or neglect after being so notified, be punished by a fine in accordance with section 114. The provisions of M.G.L. c. 139, § 3A, paragraph two, relative to liens for such debt and the collection of claims for such debt shall apply to any debt referred to in this section, except that the said *building official* shall act hereunder in place of the mayor or board of selectmen. During the time such order is in effect, it shall be unlawful to use or occupy such *structure* or any portion thereof for any purpose.

116.6 Remedy of Person Ordered to Remove a Dangerous Structure or Make It Safe. Notwithstanding the provisions of section 114, an owner, aggrieved by such order may have the remedy prescribed by M.G.L. c. 139, § 2: provided that any provision of M.G.L. c. 139, § 2 shall not be construed so as to hinder, delay or prevent the *building official* from acting and proceeding under section 116; and provided, further, that this section shall not prevent the city or town from recovering the forfeiture provided in said section 116.5 from the date of the service of the original notice, unless the order is annulled by the jury.

116.7 Standards for Making Buildings Safe or Secure. Any owner of a building who has been notified that said building shall be made safe or secure under section 116.2, shall:

1. Remove all materials determined by the head of the fire department or *building official* to be dangerous in case of fire.
2. Secure all floors accessible from grade utilizing one of the following methods so long as such method is approved by the head of the fire department and *building official* in writing:
 - a. Secure all window and door openings in accordance with the U.S. Fire Administration, National Arson Prevention Initiative Board Up Procedures (www.usfa.dhs.gov/downloads/pdf/publications/napi4.pdf) continuously until such time as the building is reoccupied; or
 - b. Provide 24 hour watchman services, continuously until such time as the building is reoccupied; or
 - c. Provide a monitored intruder alarm system at the perimeter of all floors accessible from grade, continuously until such time as the building is reoccupied.

Said owner, as the case may be, shall notify the building official that the approved method chosen to secure the building has been incorporated. Said owner shall allow the building official to enter the building for an inspection to ascertain that the building is secured and made safe. Said owner shall allow the head of the fire department to enter the building. The building official shall be supplied with records of maintenance and operation if the provisions of section 116.7.2.b. or c. are used.

3. Maintain any existing fire alarms or sprinkler systems unless written permission is obtained from the head of the fire department in accordance with M.G.L. c. 148, § 27A to shut off or disconnect said alarms or systems.
4. Maintain utilities unless written permission is obtained from the building official to disconnect said utilities. Permission to disconnect utilities shall not be granted if it will result in inadequate heat to prevent freezing of an automatic sprinkler system or inadequate utilities to maintain any other protection systems.
5. The requirements of section 116.7.1. through 4. do not prevent a building official from ordering or taking expeditious, temporary security measures in *emergency situations* pending the completion of the requirements of section 116.7.1. through 4.

1.00: continued

For the purposes of section 116., an "*emergency situation*" shall be defined as: an unexpected incident, which by its very nature may present a threat to public safety personnel who may be required to affect a rescue effort or conduct fire extinguishment operations.

Upon refusal or neglect of said owner to comply with such notice, any building official acting under the authority of section 116.3 or 116.5, shall cause to be secured all window and door openings accessible from grade in accordance with the U.S. Fire Administration, National Arson Prevention Initiative Board-up Procedures or other equivalent procedure approved by the head of the fire department, continuously until such time as the building is reoccupied.

Any building which has been made to conform to the provisions of section 116.7 during vacancy may be reoccupied under its last permitted use and occupancy classification, provided that any systems which were disconnected or shut down during the period of vacancy are restored to fully functional condition and subject to section 105 and M.G.L. c. 40A. The local building official shall be notified in writing prior to re-occupancy. If said building is changed in use or occupancy or otherwise renovated or altered it shall be subject to the applicable provisions of section 34.

116.8 Marking or Identifying Certain Buildings That Are Especially Unsafe in the Case of Fire. Any building official who determines that a building is especially unsafe in case of fire under section 116.2, shall notify the head of the fire department about the existence of said building. The building official, in cooperation with the head of the fire department, shall cause said building to be marked in accordance with the marking requirements established by the Board of Fire Prevention Regulations in 527 CMR 10.00: *Fire Prevention, General Provisions*.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 2: DEFINITIONS

201.3 Revise to read as follows:

201.3 Terms Defined in Other Codes. Where terms are not defined in this code and are defined in the *International Mechanical Code 2009*, *International Fire Code*, *International Existing Building Code 2009*, *International Energy Conservation Code 2009*, or any of the applicable specialized codes of M.G.L. 143, § 96, such terms shall have the meanings ascribed to them as in those codes.

202 DEFINITIONS: Add or revise definitions as follows:

AGRICULTURE. Defined by M.G.L. c. 128, §1A. Specifically, “farming” or “agriculture” shall include farming in all of its branches and the cultivation and tillage of the soil, dairying, the production, cultivation, growing and harvesting of any agricultural, aquacultural, floricultural or horticultural commodities, the growing and harvesting of forest products upon forest land, the raising of livestock including horses, the keeping of horses as a commercial enterprise, the keeping and raising of poultry, swine, cattle and other domesticated animals used for food purposes, bees, fur-bearing animals, and any forestry or lumbering operations, performed by a farmer, who is hereby defined as one engaged in agriculture or farming as herein defined, or on a farm as an incident to or in conjunction with such farming operations, including preparations for market, delivery to storage or to market or to carriers for transportation to market.

AGRICULTURAL, BUILDING. A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation.

BUILDING OFFICIAL. The building commissioner/inspector of buildings, local inspector or state building inspector charged with the administration and enforcement of this code in accordance with M.G.L. c. 143, §§ 3 and 3A.

DESIGN FLOOD. *See Base Flood.*

DESIGN FLOOD ELEVATION. *See Base Flood Elevation.*

HIGH-RISE BUILDING. A building more than 70 feet in height above grade plane.

JURISDICTION. The Board of Building Regulations and Standards.

NIGHT CLUB. *See section 303.1.1*

ORDINANCE. Ordinance or bylaw.

REGISTERED DESIGN PROFESSIONAL. An individual who is licensed or otherwise authorized to practice their respective design profession as defined by the statutory requirements of the professional registration laws of Massachusetts.

REPAIRS, ORDINARY. Any maintenance which does not affect the structure, egress, fire protection systems, fire ratings, energy conservation provisions, plumbing, sanitary, gas, electrical or other utilities. A building *permit* is not required for ordinary repairs.

SPECIALIZED CODES. Codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair or demolition promulgated by and under the authority of various boards authorized by the general court. *See M.G.L. c. 143, § 96.*

STORY ABOVE GRADE PLANE. Add a third note:

3. or more than six feet (1829 mm) above finished ground level for more than 50% of the total building perimeter.

TEMPORARY EMERGENCY USES. A building or space within a building that is used for purposes other than originally designed or intended. A temporary emergency use may only be used pursuant to the provisions of section 108. A Temporary Emergency Use building or space within a building shall be approved for such use by the municipal or state building official in consultation with the other appropriate municipal and state officials in accordance with procedures found at www.mass.gov/dps established for such purpose.

TEMPORARY OVERNIGHT SHELTER. *See section 3111.*

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION****301.2** Add section:

301.2 Referenced Codes. Refer to section 101 for requirements in other referenced codes, including 101.4.5 regarding 527 CMR.

303.1.1 Add section:**303.1.1.1 Definitions.**

NIGHT CLUB. An occupancy generally characterized by a combination of any of the following: no theatrical stage accessories other than raised platform; low lighting levels; entertainment by a live band or recorded music generating above-normal sound levels; later-than average operating hours; tables and seating arranged or positioned so as to create ill defined aisles; a specific area designated for dancing; service facilities for alcoholic beverages with limited food service; and high occupant load density.

305.2 Replace this section with:

305.2 Day Care. The use of a building or structure, or portion thereof, for educational, supervision or *personal care services* for more than five children older than two years nine months of age, shall be classified as a Group E occupancy.

Exception. See use group R-2 or R-3 for a day care with six to ten children. Also see M.G.L. c. 15D.

307.1 Throughout this section replace '*International Fire Code*' with '*International Fire Code* and 527 CMR, as applicable'.

307.1 Revise item 8 in the Exception to read as follows:

8. See Appendix C for agricultural material storage and utilization.

307.2 Add or revise definitions as follows:

COMBUSTIBLE LIQUID. Delete the last sentence and replace with these exceptions:

Exceptions: The category of combustible liquids shall not apply to:

1. Compressed gases or cryogenic fluids.
2. Class II and III liquids that are not heated to or above their flash points and:
 - a. that have no fire point when tested in accordance with ASTM D92, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change; or
 - b. that are in a water-miscible solution or in a dispersion with a water and inert (noncombustible) solids content of more than 80% by weight, which do not sustain combustion when tested using 49CFR 173 Appendix H or the UN Recommendation on the Transport of Dangerous Goods.

WATER MISCIBLE LIQUID. A liquid that mixes in all proportions with water without the use of chemical additives, such as emulsifying agents.

308.2 Add a third paragraph to this section as follows:

Residences such as the above with five or fewer occupants that are operated or licensed by the Massachusetts Department of Developmental Services shall comply with the 780 CMR One- and Two-family Dwellings.

308.3 Add a second paragraph to this section as follows:

A building or structure such as above subject to licensure pursuant to 104 CMR 28.00: *Licensing and Operational Standards for Community Programs* or operated by the Department of Mental Health, housing no more than 12 people, shall be classified as Group R-4.

3.00: continued

308.3.1 Revise this definition as follows:

CHILD CARE FACILITIES. Facilities that provide care on a 24-hour basis to more than five children, two years nine months of age or less.

308.5.2 Replace as follows:

308.5.2 Child Care Facility. A facility that provides supervision and personal care on less than a 24-hour basis for more than five children two years nine months of age or less shall be classified as Group I-4.

Exceptions:

1. A child day care facility that provides care for more than five but no more than 100 children two years nine months of age or less, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.
2. See use group R-2 or R-3 for a day care with six to ten children. Also see M.G.L. c. 15D.

310.1 R-2 Add to the list of occupancies:

Summer Camps for Children (*see* section 426)

310.1 R-2 Add these two paragraphs:

Child care facilities which comply with M.G.L. c. 15D, and that provide accommodations for ten or fewer children of any age for less than 24 hours are permitted in dwelling units of an R-2 building.

R-2 occupancies include facilities regulated by the Department of Mental Health that are in conformance with the occupant safety requirements of 115 CMR 7.00: *Standards for All Services and Supports*.

310.2 R-3 Replace as follows:

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*.

Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.

Child care facilities, which comply with M.G.L. c. 15D, which provide accommodations for ten or fewer children of any age for less than 24 hours, in a dwelling unit of a one or two dwelling unit building. Such dwelling units for *child care facilities* are permitted to comply with the 780 CMR One-and Two-Family Dwellings.

Congregate living facilities with 16 or fewer persons.

Adult care and *child care facilities* and residences within a one family dwelling or units of a two family dwelling are permitted to comply with the 780 CMR One-and Two-Family Dwellings.

Townhouses (three or more attached dwelling units) more than three stories in height. Height and area and fire protection requirements for townhouses shall be restricted to those for R-2 uses. (Note: Townhouses three stories or less are also classified as R-3 but shall comply with the 780 CMR One-and Two-family Dwellings.)

Residences with five or fewer occupants that are operated or licensed by the Massachusetts Department of Developmental Services shall comply with the 780 CMR One-and Two-family Dwellings.

R-3 occupancies include facilities regulated by the Department of Mental Health that are in conformance with the occupant safety requirements of 115 CMR 7.00: *Standards for All Services and Supports*.

310.2 Add or revise definitions as follows:

3.00: continued

BOARDING HOUSE. A building arranged or used as a "lodging house" as defined in M.G.L. c. 140, § 22.

CONGREGATE LIVING FACILITIES. A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities. Such facilities may include exempted facilities noted in M.G.L. c. 140, § 22.

RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. Add this last sentence and Note:

Assisted living facilities shall conform with this code and M.G.L. c. 19D as administered by the Executive Office of Elder Affairs. For building code purposes portions of assisted living residences which are used for any use other than R Use shall be classified, designed and constructed in accordance for their intended use.

Note. This occupancy includes such facilities regulated by the Department of Mental Health that are in conformance with the occupant safety requirements of 115 CMR 7.00: *Standards for All Services and Supports*.

SUMMER CAMPS FOR CHILDREN. Premises with residential facilities operated solely between April and October for recreational and other purposes. For requirements *see* section 426.

312.2 Add subsection:

312.2 Agricultural Buildings. Agricultural buildings shall be exempt from the provisions otherwise applicable to use Group U buildings, but shall be governed by the provisions set forth in Appendix C.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

401.2 Add subsection:

401.2 Referenced Codes. *See* subsection 101.4.

402.11 Add Note 5. as follows:

5. A permit is required from the head of the Fire Department.

402.14 Add this last sentence:

'See 527 CMR 12.00: 2008 Massachusetts Electrical Code (Amendments).'

402.15 Replace 'accessible to' with 'in a location approved by'

403.1.1 Add this subsection:

403.1.1 Other References. Also *see* M.G.L. c. 148, §§ 26A, 26A½, and 26G.

403.3 Add a third exception:

3. Also *see* Chapter 9 for fire sprinkler exclusions in elevator machine rooms, hoistways and pits.

403.4.7.2 Replace item 3 as follows:

3. Standby power, shall be required for elevators in accordance with applicable requirements of 524 CMR.

403.4.8.1 Add Note 7 as follows:

7. Elevators, in accordance with the applicable requirements of 524 CMR.

403.6 Revise to read as follows:

403.6 Elevators. Elevator installation and operation in high-rise buildings shall comply with Chapter 30.

403.6.1 Fire Service Access Elevator; Reserved.

403.6.2 Occupant Evacuation Elevators: Reserved.

406.2.2 Replace second sentence with:

'Vehicle and pedestrian areas accommodating van-accessible parking required by subsection 1106.5 shall conform to 521 CMR 23.00: Parking and Passenger Loading Zones.'

406.3.3.1 Replace in two locations '20 percent' with '25 percent'.

406.5.2 Add a second sentence:

'The construction of the concrete pad around the fuel dispensing island shall be approved and installed as required by 527 CMR 5.00: Operation and Maintenance of Buildings or Other Structures Used as Garages, Service Stations and the Related Storage, Keeping and Use of Gasoline or Other Motor Fuel.'

407.1.1 Add subsection:

407.1.1 Other References. Hospitals, nursing homes and convalescent homes shall be constructed of at least Type IB construction in accordance with M.G.L. c. 111, §§ 51 and 71.

409.1.2 Add subsection:

409.1.2 Other Reference. *See* M.G.L. c. 143, § 89 and 527 CMR for additional requirements.

4.00: continued

412.4.5 Add a second sentence as follows:

‘Also *see* 527 CMR.’

414.1.3 In the first sentence replace ‘*building official*’ with ‘*building official and fire official*’. In the first paragraph replace ‘qualified person, firm or corporation approved by’ with ‘*registered design professional and submitted to*’

414.1.4 Add subsection:

414.1.4 Bulk Merchandizing Retail Buildings. *See* section 424.

415.1 Add a last sentence as follows:

‘Note additionally that fire separation distances in section 415 for buildings containing explosives, as set forth in 527 CMR 13.00: *Explosives*, always govern, unless fire separation distances of the *International Fire Code* are more stringent.’

415.5.3 Add subsection:

415.5.3 Smoke and Heat Venting. Smoke and heat vents complying with section 910 shall be installed in the following locations:

1. In occupancies classified as Group H-2 or H-3, any of which are over 15,000 square feet (1394 m²) in single floor area.

Exception. Buildings of noncombustible construction containing only noncombustible materials.

2. In areas of buildings in Group H used for storing Class 2, 3 and 4 liquid and solid oxidizers, Class 1 and unclassified detonable organic peroxides, Class 3 and 4 unstable (reactive) materials, or Class 2 or 3 water-reactive materials as required for a Class V hazard classification.

Exception. Buildings of noncombustible construction containing only noncombustible materials.

424.0 Add this section in its entirety:

SECTION 424.0: BULK MERCHANDISING RETAIL BUILDINGS

424.1 General. Bulk merchandising retail buildings have different fire and life safety risks than traditional retail buildings. This section provides standards to adequately deal with these differences, and to reduce the risk of life loss, injury, and excessive property damage from fire.

424.2 Scope. The provisions of this section shall apply to buildings or structures defined as bulk merchandising retail buildings or portions thereof containing high piled combustible storage. Unless otherwise noted in this section, the requirements for bulk merchandising retail buildings shall be in accordance with the requirements set forth for Group M and section 414.

424.3 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown below (*See* Chapter 2 for terms not defined below):

BULK MERCHANDISING RETAIL BUILDING. A building where sales areas contain high piled combustible commodities, or high piled, high hazard commodities as defined in Chapter 3 and 4.

GROUP A PLASTICS. Products that utilize plastic, or non plastic products that utilize significant plastic packaging materials, that have a high BTU content:

- ABS (acrylonitrile-butadienestyrene copolymer)
- Acetal (polyformaldehyde)
- Acrylic (polymethyl methacrylate)
- Butyl rubber
- EPDM (ethylene-propylene rubber)
- FRP (fiberglass reinforced polyester)

4.00: continued

Natural rubber (expanded)
 Nitrile rubber (acrylonitrilebutadiene rubber)
 PET or PETE (polyethylenerephthalate)
 Polybutadiene
 Polycarbonate
 Polyester elastomer
 Polyethylene
 Polypropylene
 Polystyrene (expanded and unexpanded)
 Polyurethane (expanded and unexpanded)
 PVC (polyvinyl chloride greater than 15% plasticized, *e.g.*, coated fabric unsupported film)
 SAN (styrene acrylonitrile)
 SBR (styrene-butadiene rubber)

HIGH PILED COMBUSTIBLE COMMODITY. Storage of combustible materials in piles greater than 12 feet (3.658 m) in height or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12 feet (3.658 m) in height.

HIGH PILED, HIGH HAZARD COMMODITY. Storage of combustible materials such as rubber tires, Group A plastics, flammable liquids, idle pallets and commodities with similar heat release characteristics where the top of storage is greater than six feet (1.829 m) in height.

RACK STORAGE. Combination of vertical, horizontal and diagonal members that support stored materials in fixed or portable racks.

SHELF STORAGE. Storage on structures less than 30 in. (76.2 cm) deep with shelves usually two feet (0.6 m) apart vertically and separated by approximately 30 in. (76.2 cm) aisles.

424.3 Commodity Classification. Commodities in storage and display shall be classified in accordance with the following NFPA standards:

- 13: Installation of Sprinkler Systems
- 30: Flammable and Combustible Liquids Code
- 30B: Aerosol Products, Manufacture and Storage
- 231: General Storage
- 430: Storage of Liquid and Solid Oxidizer

424.4 Fire Protection Requirements. Fire protection requirements shall be in accordance with Table 424.4.

TABLE 424.4 FIRE PROTECTION REQUIREMENTS

Commodity Class ¹	Size of High-Piled Display Area ² (sq. ft.)	Fire Protection Requirements				
		Fire Suppression System (424.5)	Fire Alarm/Notification (424.14)	Fire Department Access Doors (424.8)	Hose Connections (424.7)	Manual Smoke and Heat Vents (424.16)
I-IV	0 – 2,500	NR	NR	NR	NR	NR
	2,501 – 12,000	Yes	NR	NR	NR	NR
	Over 12,000	Yes	Yes	Yes	Yes	Yes
High Hazard	0 – 500	NR	NR	NR	NR	NR
	501 – 2,500	Yes	NR	NR	NR	NR
	2,501 – 12,000	Yes	NR	Yes	Yes	NR
	Over 12,000	Yes	Yes	Yes	Yes	Yes

NR = Not required.

- For commodity classifications definitions, *see* subsection 424.3.
- Areas that are separated by 60 ft of display area with such areas not used for high piled storage, or that are separated with a one-hour fire-resistance-rated separation barrier, can be considered as separated high piled areas.
- If the building is required to be sprinklered under this code, then the sprinkler system protecting the high piled storage area and 15 ft beyond shall be designed in accordance with the appropriate NFPA Standard(s).

4.00: continued

424.5 Fire Suppression Systems. Fire sprinkler design and installation shall be provided in accordance with the applicable requirements set forth by NFPA 13, 30, 30B, 231, 430 or other nationally recognized codes and standards, or tests conducted in test laboratories as defined in 527 CMR 49.00: *Appendices*.

424.6 Storage Arrangement. Storage arrangements for fire protection purposes shall comply with requirements set forth by NFPA 13, 30, 30B, 231, 430, as listed in Appendix A, or other nationally recognized codes and standards, or tests conducted in test laboratories as defined in 527 CMR 49.00: *Appendices*.

424.7 Hose Connections. A Class I automatic, wet standpipe system shall be provided in accordance with NFPA 14. Hose connections shall be located around the interior perimeter of the building within five ft of all required fire department access doors, adjacent to the latch side of the door. Hose connections shall be installed to accommodate 200 feet of travel distance to any point in the building.

Where the most remote portion of the building exceeds 200 ft of travel distance from the required access doors, additional hose connections shall be provided in locations approved by the head of the fire department. Hose connections shall be readily accessible and marked for fire department use only.

When approved by the head of the fire department the following exceptions shall be permitted.

Exception 1. Hose connections may be omitted when the following fire department building access and fire hydrant coverage is provided: minimum 18 feet wide, unobstructed access roadways located within 20 feet of the building on at least three sides; minimum ten feet wide, unobstructed access route between the access roadway and the fire department access doors; and, fire hydrants in locations approved by the head of the fire department.

Exception 2. In lieu of a Class I standpipe system, a Class II automatic, wet-standpipe system in accordance with NFPA 14 shall be permitted when the following fire department building access and fire hydrant coverage is provided: minimum 18 feet wide, unobstructed access roadways located within 50 feet of the building on at least three sides; minimum ten feet wide, unobstructed access route between the access roadway and the fire department access doors; and, fire hydrants in locations *approved* by the head of the fire department. The hose connections shall be located as described above for the Class I standpipe system. Occupant hose shall not be required, and the hose connections shall be marked for fire department use only.

424.8 Fire Department Access Door. Fire department access doors shall be provided for fire department emergency access. Access doors shall be:

1. located adjacent to fire department access roadways,
2. provided with an *approved* exterior fire department accessible key cylinder operable lock device,
3. provided with *approved* fire department identification signs, and
4. provided such that all points of the floor area are accessible within 200 feet of travel distance.

Fire department access doors may be used as occupant egress doors.

424.9 Fire Department Access Roadways. Fire department access roadways shall be provided on at least two sides of the building with such access to be *approved* by the head of the fire department prior to any construction. Fire hydrants shall be provided in locations *approved* by the head of the fire department.

424.10 Means of Egress. Means of egress shall be in accordance with Chapter 10 for Group M unless otherwise modified in this section.

Exception. Exit access travel distance shall be limited to 200 feet. If the only means of customer entrance is through one exterior wall of the building, two thirds of the required egress width shall be located in this wall. At least one half of the required exits shall be located so as to be reached without passing through checkout stands. In no case shall checkout stands or associated railings or barriers obstruct exits, required aisles, or approaches thereto.

4.00: continued

424.11 Flammable/Combustible Liquids. The display, storage, protection, and maximum allowable quantities of flammable and combustible liquids permitted in mercantile display areas shall be in accordance with NFPA 30.

424.12 Aerosols. The display, storage, protection, and maximum allowable quantities of aerosols permitted in mercantile occupancies shall be in accordance with NFPA 30B.

424.13 Non-flammable and Non-combustible Hazardous Materials. Non-flammable and noncombustible hazardous materials such as: Oxidizers, Unstable Materials, Toxics, Highly Toxics, Corrosives, and Water Reactives shall meet the following requirements:

$Q = F \times A$ where:

Q = the maximum quantity in a single control area for mercantile display.

F = the density factor as indicated in Table 424.13.

A = the area occupied for mercantile display. For computation purposes, the area shall not exceed 1,500 square feet (139.39 m²) per control area.

**TABLE 424.13 DENSITY FACTOR FOR HAZARDOUS MATERIALS
EXEMPTIONS CALCULATIONS**

Material	Class	Solids in lbs. ¹	Liquid in gallons ¹ (lbs.)	Gas in cubic feet ¹
Oxidizers	4	Not permitted	Not permitted	Not permitted
	3	0.75	(0.75)	112.5
	2	1.5	(1.5)	9
	1	12	(12)	4.5
Unstable (reactive)	4	Not permitted	Not permitted	Not permitted
	3	0.375	(0.375)	3.75
	2	0.3	(0.3)	1.5
	1	Unlimited	Unlimited	2.25
Toxics	All	0.65	(0.65)	1.053
Corrosives	All	6.5	0.65	1.053
Highly Toxic	All	0.0013	(0.0013)	0.026
Water Reactive	3	0.375	(0.0375)	Not Applicable
	2	0.3	(0.3)	
	1	0.375	(0.0375)	

1. Quantities may be increased by 100% in sprinklered buildings.

424.14 Fire Alarm or Notification Systems. Either a fire alarm system or emergency notification system, as described below and approved by the head of the fire department, shall be provided:

1. **Fire Alarm System.** The fire alarm system shall include the following:

a. A fire alarm system required for life safety shall be installed, tested, and maintained in accordance with applicable requirements of 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* and NFPA 72.

b. All systems and components shall be approved for the purpose for which installed, and all installation wiring or other transmission paths shall be monitored for integrity in accordance with NFPA 72.

c. Manual fire alarm stations shall be provided in the natural path of escape near each required exit from an area. Each manual fire alarm station shall be accessible, unobstructed, visible, and of the same general type.

d. Notification signals for occupants to evacuate shall be by audible and visible signals in accordance with NFPA 72 and 527 CMR. The general evacuation alarm signal shall operate throughout the entire building.

e. The fire alarm system shall be arranged to transmit the alarm automatically via any of the following means acceptable to head of the fire department and in accordance with NFPA 72:

- i. Auxiliary Alarm System
- ii. Central Station Connection
- iii. Proprietary System, or
- iv. Remote Station Connection.

4.00: continued

f. The fire alarm control panel location shall be located in an area acceptable to the head of the fire department. Where required, a remote annunciator shall be located in an area acceptable to the head of the fire department.

g. Other control systems intended to make the protected premises safer for building occupants including, but not limited to, duct smoke detectors, fire/smoke dampers, smoke management systems, fire door controls, shall be installed and monitored for integrity in accordance with NFPA 72, and a distinctive supervisory signal shall be provided to indicate a condition that would impair the satisfactory operation of the equipment.

h. Supervisory attachments including, but not limited to, control valves, fire pump running conditions, float valves, shall be installed and monitored for integrity in accordance with NFPA 72, and a distinctive supervisory signal shall be provided to indicate a condition that would impair the satisfactory operation of the equipment.

i. All building HVAC fans shall be arranged to automatically shut down on any general alarm condition. Duct smoke detectors shall not be required.

j. Water flow initiating devices shall be arranged to initiate an alarm condition within one minute of being activated. In addition, provisions shall be made to control and prevent false alarms due to water surges.

2. **Emergency Notification System.** During a fire emergency, the emergency notification system shall sound an audible alarm in a continuously attended location for the purpose of initiating the evacuation plan required under this section.

424.15 Evacuation Planning and Training. An evacuation plan shall be submitted at the time of application for a building permit as part of the required. The certificate of use and occupancy shall not be issued until the evacuation plan has been reviewed and approved by the head of the fire department. Any changes to the evacuation plan shall not be effected until a revised plan has been submitted to and approved by the head of the fire department. The evacuation plan shall detail procedures, define roles and responsibilities of employees, and shall include an egress plan indicating routes of travel to all exits. The evacuation plan shall be used to ensure the safe evacuation of all customers and employees. All employees shall be instructed and periodically trained with respect to their duties, as required by 527 CMR 10.00: *Fire Prevention, General Provisions*.

424.16 Smoke and Heat Venting. Adequate methods of manual heat and smoke venting shall be provided. The method of operation, vent area, spacing layout, construction of vents and curtain boards or other acceptable means of addressing methods of heat and smoke venting shall be determined by an engineering evaluation and analysis. The analysis shall be reviewed and approved by the head of the fire department and shall contain sufficient detail to evaluate the hazard and effectiveness of the venting system.

425.0 Add section:

SECTION 425.0: MOTION PICTURE AND TELEVISION PRODUCTION FACILITIES

425.1 Scope. This section addresses building code regulations (not fire prevention regulations) for motion picture and television industry soundstages, production facilities, and approved production locations. All requirements not specified in this section shall conform to this code.

425.2 Referenced Standard. Except as otherwise noted in section 425.0, the buildings, structures and sites associated with motion picture and television industry soundstages, production facilities, and approved production locations shall be in accordance with NFPA 140 except NFPA-101 does not apply. In addition, these facilities, shall meet 527 CMR and any other applicable Massachusetts specialized codes, *see* section 101.4.

425.3 Definitions. Definitions in NFPA 140 shall apply along with any additional terms that are defined by other reference standards.

425.4 Sound Stages and Approved Production Facilities.

425.4.1 Fire Protection. *See* NFPA 140, section 5.11.

425.4.2 Fire Department Building Access. *See* 527 CMR 10.00: *Fire Prevention, General Provisions*.

4.00: continued

425.4.3 Fire Hydrants. At least one fire hydrant shall be located on each side of the building. The head of the fire department shall determine fire hydrant locations (*see* 527 CMR).

425.4.4 Portable Fire Extinguishers. Portable fire extinguishers shall be provided installed in accordance with NFPA 10 as listed in Chapter 35.

425.4.5 Automatic Sprinkler System. An automatic sprinkler system shall be designed and installed in accordance with the Extra Hazard, Group 2 requirements of NFPA 13 throughout all buildings having a soundstage, production studio or approved production facility. The automatic sprinkler system shall additionally meet the provisions of section 903, as applicable.

425.4.6 Fire Alarm Systems.

425.4.6.1 Manual Fire Alarm System. A manual fire alarm system meeting the requirements of subsection 907.3 shall be installed in all buildings having a soundstage, production studio, or which are approved production facilities.

425.4.6.2 Alarm Notification Appliances. Alarm notification appliances shall be provided in accordance with Chapter 9. With the approval of the head of the local fire department (*see* M.G.L. c. 148, § 27A), the alarm notification appliances may be deactivated during videotaping, filming or broadcasting of programs as long as the building is equipped with a fully operating, approved and supervised automatic sprinkler system in accordance with NFPA 13.

425.4.6.3 Supervision. The automatic sprinkler system and fire alarm system shall be supervised in accordance with Chapter 9.

425.5 Means of Egress. Means of egress shall be in accordance with Chapter 10 except NFPA 140, sections 4.10.2 and 4.10.3, shall govern where there is conflict with Chapter 10. Means of egress shall be appropriate for the intended use and subject to the *approval* of the local *building official* in consultation with the head of the fire department.

425.6 Approved Production Locations.

425.6.1 Permits. A building permit is required for structures undergoing construction, reconstruction, and modification. Other permits may be required from the local fire department or as applicable to any specialized code.

425.6.2 Foamed Plastic Materials. Foamed plastic materials affixed to the building or structure and used for decorative purposes shall meet the requirements of NFPA-140, Chapter 5.

425.6.3 Structural Loads. Buildings or structures shall be evaluated for increased loading caused by sets, scenery, and other equipment in accordance with this code.

425.6.4 Fire Department Access. *See* 527 CMR 10.00: *Fire Prevention, General Provisions*.

425.6.5 Means of Egress. *See* Chapter 10.

425.7 Operating Features.

425.7.1 Audience Life Safety. When a live audience is present for a production, the provisions for life safety and means of egress shall be subject to the approval of the local *building official* in consultation with the head of the local fire department.

425.7.2 Notification in Event of Emergency. The production company shall provide the head of the local fire department an emergency notification procedure for the production location activities for review and approval (*see* 527 CMR 10.00: *Fire Prevention, General Provisions*).

426 Add section:

SECTION 426.0: SUMMER CAMPS FOR CHILDREN.

426.1 New and Existing Occupancies. This section shall apply to existing and new *summer camps for children*. The use of such accommodations for purposes of inspection and certification shall be considered as being similar to a dormitory in Use Group R-2.

4.00: continued

426.2 Means of Egress. All one-story, one-room buildings having 1,000 square feet or less and having 25 occupants or less shall require only one means of egress provided that:

1. the length of travel does not exceed 50 feet from any point in the building to the outside at grade; and,
2. the minimum width for aisles and corridors shall be three feet.

426.2.1 Emergency Escape. Every sleeping room shall have at least one exterior door or openable window to permit emergency exit or rescue; the windows shall conform to the following requirements:

1. must be openable from the inside without the use of separate tools;
2. the sill height shall not be more than 36 inches above the finish floor and with a maximum six foot drop from the window sill to grade below the window; and
3. provide a minimum net clear opening area 5.7 square feet. The minimum net clear opening dimensions shall be 20 X 24 inches in either direction.

426.3 Fire Protection. Smoke detectors shall be required for existing and new residential units in accordance with section 907. When applicable, carbon monoxide (CO) detectors shall be required in *summer camps for children*. In new construction of *summer camps for children*, and where applicable, CO detectors shall be hard-wired and interconnected or otherwise be of an acceptable wireless type and conform to location requirements and listing requirements as set forth in 527 CMR 31.00 or 248 CMR, as applicable. For existing *summer camps for children* undergoing alterations, additions, *etc.*, refer to Chapter 34.00.

For existing day care centers, located on the premises of *summer camps for children*, CO detectors shall conform to the requirements of 527 CMR 31.00: *Carbon Monoxide Alarms* or 248 CMR, as applicable.

Exception. Tents and other temporary shelters which are designed to sleep less than eight persons and which have an open side consisting of greater than 1/6 of the perimeter of the shelter or which have built-in provisions for emergency escape.

426.4 Mechanical. If camps are heated, then the building must conform to all applicable code sections and specialized codes.

426.5 Enforcement and Inspections. Enforcement shall be by the local *building official* who shall inspect and certify the summer camps yearly, prior to season opening.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

501.1 Add two notes as follows:

Note 1. Site plans may be required to contain fire lanes per 527 CMR 10.00: *Fire Prevention, General Provisions*, as may be deemed necessary by the head of the fire department.

Note 2. In this chapter, requirements for unsprinklered buildings may be overridden by sprinkler requirements of M.G.L. c. 148.

503.1.3.1 Add subsection:

503.1.3.1 Hospital Construction. M.G.L. c. 111, § 51 requires hospitals to be constructed of at least Type IB construction.

504.1 Add a last sentence to the exception: Also *see* 527 CMR 10.00: *Fire Prevention, General Provisions* for fire lane requirements.

504.2 Replace the text 'section 903.3.1.2' with 'section 903.3.1.1'.

507.4 Two Story. Reserved.

507.9 Add a last sentence to the exception: Also *see* 527 CMR 10.00: *Fire Prevention, General Provisions* for fire lane requirements.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 6: TYPES OF CONSTRUCTION

603.1.3 Replace the text 'of this code' with '527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* and this code'

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 7: FIRE AND SMOKE PROTECTION DEVICES

There are no amendments to Chapter 7.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 8: INTERIOR FINISHES**

801.5 Replace as follows:

801.5 Applicability. For buildings in flood hazard zones and high hazard zones as established in Appendix G, *interior finishes, trim and decorative materials* below the base flood elevation shall be flood-damage-resistant materials.

803.1 At the end of the paragraph add this text:

Foam plastics shall not be permitted as an interior finish in A-2 Nightclubs occupancies with an occupant load of 50 or more unless the rooms in which the foam plastics are installed are equipped with an automatic sprinkler system conforming to the requirements of section 903 and in accordance with the following restrictions:

1. Foamed plastics shall be permitted as interior wall and ceiling finish if the requirements of section 2603.9 are met.
2. Foam plastic shall be permitted for trim (chair rails, crown molding and similar uses) if the requirements of section 2604 are met.

Table 803.9 Add superscript m (R-3^m) to Group R-3 and a Note m. as follows:

Note m: A Group R-3 occupancy subject to licensure by the Department of Mental Health pursuant to 104 CMR 28.00: *Licensing and Operational Standards for Community Programs*, or operated by the Department of Mental Health, shall apply the interior finish requirements specified for Group R-4.

806.1 Replace as follows:

806.1 General Requirements. In all occupancies, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall satisfy all applicable requirements of 527 CMR 21.00: *Decorations, Curtains, Draperies, Blinds and Other Window Treatments*.

806.3 Add a second sentence as follows: 'Foam plastic utilized in A-2 Nightclubs is subject section 803.1.'

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 9: FIRE PROTECTION SYSTEMS****901.1** Add these notes:

Note 1. Throughout Chapter 9, when reference to the *International Plumbing Code* is made the user shall refer to 248 CMR 10.00: *Uniform State Plumbing Code*.

Note 2. Throughout Chapter 9, when reference to the *International Fire Code* is made the user shall:

- a. Refer to 527 CMR, the Massachusetts Fire Prevention Regulations; or
- b. Refer to the *International Fire Code* if the applicable requirements are not contained in 527 CMR; or
- c. Contact the local fire official for the applicable requirements if not found in either 527 CMR or the *International Fire Code*.

Note 3. Throughout Chapter 9, when references to Chapter 27 and/or NFPA 70 are made, the user shall refer to 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*.

Note 4. Throughout Chapter 9, where reference is made to the terms "fire official", "fire department", "head of the fire department" or "fire code official", such is to be construed as meaning the "local fire chief or his / her designee".

Note 5. In subsections 904.2, 907.1.1, 909.7, 909.8, 909.9, 909.10, 909.18.8.3.1, 909.19, 909.19 Exception, and 910.4, the term "fire official" or "*building official*" is to be substituted with the terms "*building official* in consultation with the fire official". The fire official may appeal a *building official* action per Chapter 1.

Note 6. In subsections 901.6.3 Exception and 909.20.6.3, the term "*building official*" is to be substituted with the term "*building official* and/or fire official".

Note 7. In subsection 903.1.1, the term "fire code official" is to be substituted with the term "*building official* and fire official".

901.2 Replace the exception as follows:**Exceptions:**

1. Any fire protection system or portion thereof not required by this code shall be permitted to be installed for partial or complete protection provided that such system meets the requirements of this code.
2. Where alternative fire protection designs, which vary from any prescriptive requirements of this Chapter, are to be utilized, the owner shall engage an independent *registered design professional*, to review said alternative design. The scope of the review shall include, but not be limited to:

- a. Design assumptions, methodologies, and resulting proposed system designs, to determine whether or not:
 - i. the proposed fire protection systems and any other systems which are affected by the alternative design, are consistent with the general objectives and prescriptive provisions of this Chapter;
 - ii. they all conform to accepted engineering practice.
- b. Preparation of a written report to the *building official* as to the appropriateness of the proposed design specifically listing any variances from the prescriptive provisions of this Chapter and describing, in detail, the design provisions used to achieve compliance.

If the reviewing engineer concurs with the proposed design, the owner shall make application for a variance, to the State Building Code Appeals Board as provided in section 113.0. In addition to all supporting information and materials, the reviewing engineering's report required per this exception shall be included in the application for variance. A building permit shall not be issued until the variance, if required, has been granted, or unless the building permit is issued in part per section 107.3.3.

When a variance is granted per this exception for a bulk merchandising retail building as defined in Chapter 4, and when the condition is common to future buildings of the owner, the BBRS, upon request of the owner, may provide that the variance shall be applicable to such future buildings. If such request is made, a quorum of the BBRS shall hear the appeal. Each such application to a future building will be subject to determination as prescribed in section 107.1.2 by the *building official* in conjunction with the fire official that its use is in conformity with the terms of the variance.

9.00: continued

901.2.1 Add new subsection:

901.2.1 Document Submittal Process. This process includes three tiers of the minimum document submittal requirements. This process does not preclude the permit applicant from submitting additional documents; for example shop drawings along with the *construction documents* at time of permit application.

1. **Tier One, Construction Documents** - Prior to issuance of a building permit, *construction documents* for the fire protection system must be submitted in accordance with section 107.1.2 and a building permit obtained prior to the installation of fire protection systems or modifications, alterations, additions or deletions to an existing fire protection system. The *construction documents* shall contain sufficient information to completely describe each of the fire protection system(s) for which a permit is to be issued. The *construction documents* shall include the following:

- a. Each system shall be described in a narrative report, which contains:
 - i. design methodology for the protection of the occupancy and hazards in accordance with this code and applicable NFPA Standards and,
 - ii. sequence of operation of all fire protection systems and operations and,
 - iii. testing criteria to be used for final system acceptance.
- b. Building and site access for fire-fighting and/or rescue vehicle(s) and personnel.
- c. Fire hydrant(s) location and water supply information.
- d. Type/description and design layout of the automatic sprinkler system(s).
- e. Automatic sprinkler system(s) control equipment location.
- f. Type/description and design layout of the automatic standpipe system(s).
- g. Standpipe system hose valve(s) type and location.
- h. Fire department siamese connection type(s) and location.
- i. Type/description and design layout of the fire protective signaling system(s).
- j. Fire protective signaling system(s) control equipment and remote annunciator location.
- k. Type/description and design layout of the smoke control or exhaust system(s).
- l. Smoke control or exhaust system(s) control equipment location.
- m. Building life safety system features (auxiliary functions) required to be integrated as part of the fire protective signaling system(s).
- n. Type/description and design layout of the fire extinguishing system(s).
- o. Fire extinguishing system(s) control equipment location.
- p. Fire protection system(s) equipment room location.
- q. Fire protection system(s) equipment identification and operation signs.
- r. Fire protection system(s) alarm/ supervisory signal transmission method and location.
- e. Fire command center location.
- t. Type/description and location of any emergency alarm system.
- u. Type/description and location of any alternative fire suppression system or protection.
- v. Type/description and location of any carbon monoxide protection.

2. **Tier Two, Shop Drawings** - Prior to installation of fire protection systems, shop drawings, where applicable, shall be submitted to the *building official* and fire official and shall contain, but not be limited to; detailed design layout, equipment specifications, system sequence of operation, and analysis to substantiate the design. Shop drawings shall note the name(s), license number(s) and license expiration date(s) of the contractor(s) installing the fire protection systems.

Exception. For shop drawings of Fire Alarm and Detection Systems *see* section 907.1.2 for applicable requirements.

3. **Tier Three, Record Drawings** - As built plans shall be provided to the building owner for all fire protection and life safety systems that are sealed as reviewed and approved by the *registered design professional* or legally recognized professional performing Construction Control. Where changes to original shop drawings are minor, a list of as-built changes shall be permitted to be submitted where sealed and reviewed and approved by the *registered design professional* or legally recognized professional performing Construction Control.

9.00: continued

901.3 Replace as follows:

901.3 Maintenance. All water based fire protection systems shall be maintained in accordance with NFPA 25 as listed in Chapter 35. All other *fire protection systems* shall be maintained in accordance with the requirements of the applicable reference standards and standards listed in Chapter 35. The owner of every building or structure shall be responsible for the care and maintenance of all *fire protection systems*, including equipment and devices, to ensure the safety and welfare of the occupants. No person shall shut off, disconnect, obstruct, remove or destroy, or cause or permit to be shut off, disconnected, obstructed, removed or destroyed, any part of any sprinkler system, water main, hydrant or other device used for fire protection or carbon monoxide detection and alarm in any building owned, leased or occupied by such person or under his control or supervision, without first procuring a written permit so to do from the head of the fire department of the city or town wherein such building is situated in accordance with M.G.L. c. 148, § 27A.

When installations of *fire protection systems* are interrupted for repairs or other necessary reasons, the owner, tenant or lessee shall immediately advise the local fire department and shall diligently prosecute the restoration of the protection.

901.5 Revise to read as follows:

901.5 Acceptance Tests. *Fire protection systems* shall be tested in accordance with the requirements of this code and NFPA Standards and approved testing criteria and operational sequence as submitted in section 901.2.1, Tier One, Item a. When required, the tests shall be conducted in the presence of the *building official* and/or fire official or an approved third party inspection agent.

901.5.1 Add subsection:

901.5.1 Certificate of Occupancy. Prior to the issuance of a Certificate of Occupancy and prior to witness of acceptance testing the following documents must be submitted to the building and fire officials, or designees.

1. Certification from the *registered design professional*, or other legally recognized professional, responsible for the *construction documents* per section 107.6, stating that the *fire protection systems* have been installed in accordance with applicable codes and standards, in accordance with the approved *construction documents* and that the record drawings indicate any deviations, if any.
2. Confirmation by the building owner or the owner's authorized representative that they have received the as-built record drawings.
3. Material, Test, Performance, and Completion Certificates, properly executed by the installing contractor in accordance with the applicable NFPA standards.

Note. In lieu of witnessing a satisfactory functional test, the *building official* and fire official or designees, may accept a final performance test report from a *registered design professional*, or other legally recognized professional, as an acceptance test. Said report shall certify that complete and satisfactory functional tests of all *fire protection systems*, in accordance with the applicable codes and standards, and that the approved testing criteria and operational sequence, have been witnessed.

901.6.1 Delete.

901.6.2 Delete.

901.7 Replace as follows:

901.7 Signs. All signs required to identify fire protection equipment, equipment rooms and equipment locations shall be constructed of durable materials, be permanently installed and be readily visible. Letters and numbers shall contrast with the sign background, shall be at least two inches in height and shall have an appropriate width-to-height ratio to permit the sign to be read easily from a distance of ten feet. The sign and location shall be approved by the local fire department.

9.00: continued

901.7.1 Add subsection:

901.7.1 Sprinkler Control Valve Room Signs. Where sprinkler control valves are located in a separate room or building, a sign shall be provided on the entrance door. The lettering shall be at least 2½ inches (63.5 mm) in height and shall otherwise conform to section 901.7 and shall read "Sprinkler Control Valves."

902.1 Replace or add definitions as follows:

CARBON MONOXIDE DETECTOR. A listed device that activates an alarm upon detection of carbon monoxide.

FIRE AREA. The aggregate area of the building regardless of subdivisions by fire barriers and horizontal assemblies.

MAINTENANCE OF FIRE PROTECTION SYSTEMS. Replacement or repair of any component or components of a *fire protection system*, where such does not affect system performance and compatibility. No building permit is required for maintenance. Other permits, however, may be required pursuant to M.G.L. c. 148, § 27A and 527 CMR.

MODIFICATIONS, ALTERATIONS, ADDITIONS OR DELETIONS TO FIRE PROTECTION SYSTEMS. Any changes which affect the performance of the *fire protection system*. Such changes require a building permit and are subject to other permitting requirements pursuant to M.G.L. c. 148, § 27A.

NIGHT CLUBS. See section 303.1.1

903.2 Replace this section as follows:

903.2 Where Required. Automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Table 903.2 and this Section.

Note. Automatic sprinkler systems may be required by M.G.L. c. 148, § 26A, 26A½, 26G, 26G½, 26H or 26I, or M.G.L. c. 272 §§ 86 through 86d

903.2 Replace the exception as follows:

Exceptions: Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system and notification in accordance with section 907 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

1. Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic smoke detection and notification system in accordance with section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with section 707 or not less than two-hour horizontal assemblies constructed in accordance with section 712, or both.
2. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard and protected by an alternative automatic fire-extinguishing system in accordance with Section 904.
3. Portions of buildings that comply with Chapter 4 for open parking structures less than 70 feet in height above *grade plane*.
4. Machine rooms of traction/drum hydraulic elevators, elevator hoistways, or elevator pits. Such elevator machine rooms, hoistways, or pits shall be constructed to meet the fireresistance rating specified in Table 601 and otherwise as required by the applicable sections of Chapter 7. Where Table 601 requires a higher fireresistance rating for elevator machine rooms, hoistways, or pits, such rating must be provided unless such ratings are governed by other sections of this code. For elevator installation within atriums also see Chapter 4 for additional fireresistance rating guidance. Where the elevator machine room is determined to be a true penthouse roof structure, also refer to section 1509.0 for additional fireresistance rating requirements.

9.00: continued

5. Noncombustible and limited combustible concealed spaces and plenums that contain electrical, data, communications and other cables that are of the types and in the configurations permitted in such spaces by 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*.
6. Transformer Vaults where all the following conditions are satisfied:
 - a. The cable within the vault is flame retardant or limited combustible.
 - b. The dielectric fluid is a limited combustible fluid.
 - c. The vault is enclosed in three hour fire resistance rated construction.
 - d. The vault is at grade or no more than one level below grade. Access to the vault is directly from the exterior or via a dedicated two hour passageway.
 - e. The vault is protected with automatic smoke detection connected to the building fire alarm system which notifies the fire department upon activation.
 - f. The room is limited to the sole use of the transformer equipment and is limited in size to accommodate said equipment only. Storage is prohibited in the vault enclosure.
 - g. The vault is provided with spill containment.
 - h. An emergency fire plan has been developed with and approved by the fire department.
 - i. Continuous ventilation is provided for the vault enclosure in accordance with the ventilation requirements of NFPA 30.
 - j. The ventilation equipment is dedicated to serve the vault only.
 - k. Standby emergency power, in addition to the normal power source, is provided for the ventilation equipment.
 - l. The vault is no larger in area than 2400 sq. ft.
7. Transformer Vaults where an alternative suppression system is provided for the vault in accordance with Section 904 and Exception 6. conditions i., j., and k. are met.

903.2.1 through 903.2.10 Replace these subsections with the Table 903.2:

TABLE 903.2 OCCUPANCY AUTOMATIC SPRINKLER REQUIREMENTS

Building having occupancy	Provide automatic fire sprinkler system throughout building if one of the following conditions will exist (<i>see</i> Note a):		
	Building aggregate area	Building occupant load	Occupancy located
A-1	>0 sq. ft.	>0	Any level
A-2 [Nightclub]	>5,000 sq. ft.	≥50	Any floor other than level of exit discharge for A-2 Use
A-2 [other than Nightclub]	>5,000 sq. ft.	≥100	Any floor other than level of exit discharge for A-2 Use
A-3	>5,000 sq. ft.	≥300	Any floor other than level of exit discharge for A-3 Use
A-4	>7,500 sq. ft.	≥300	Any floor other than level of exit discharge for A-4 Use
A-5	<i>See</i> Note b		
B	>12,000 sq. ft.	---	---
B [Ambulatory Health Care]	<i>See</i> Note c		
E	>12,000 sq. ft.	---	---
E [below level of exit discharge]	<i>See</i> Note d		
F-1	>12,000 sq. ft.	---	More than 3 stories above grade plane
F-1 [Woodworking Operations]	<i>See</i> Note e		
H	>0 sq. ft.	>0	Any level
Pyroxylin Plastics	<i>See</i> Note f		
I*	>0 sq. ft.	>0	Any level
M [other than bulk merchandising and upholstered furniture display/sale]	>12,000 sq. ft.	---	More than 3 stories above grade plane

9.00: continued

TABLE 903.2 OCCUPANCY AUTOMATIC SPRINKLER REQUIREMENTS - continued

Building having occupancy	Provide automatic fire sprinkler system throughout building if one of the following conditions will exist (see Note a):		
	Building aggregate area	Building occupant load	Occupancy located
M [bulk merchandising]	>0 sq. ft.	>0	Any level
M [upholstered furniture display/sale]	>0 sq. ft.	>0	Any level
R*	>0 sq. ft.	>0	Any level
S-1	>12,000 sq. ft.	---	More than 3 stories above grade plane
S-1 [with commercial trucks/bus storage]	>5,000 sq. ft.	---	More than 3 stories above grade plane
S-1 [with repair garage, building more than 2 stories above grade]	>10,000 sq. ft.	---	In basement or more than 3 stories above grade plane
S-1 [with repair garage, building 1 story above grade]	>12,000 sq. ft.	---	In basement
S-1 [with commercial truck/bus repair garage]	>5,000 sq. ft.	---	In basement or more than 3 stories above grade plane
S-1 [with tire storage]	See Note g		
S-2	See Note h & Note i		
<p>Note a – For Use Group R and I-1 Buildings with an aggregate building area of 12,000 sq. ft. or more, and Mixed Use Buildings, the sprinkler system shall be designed and installed throughout the structure in accordance with NFPA 13. For the purposes of section 903.2, the aggregate building area shall be the combined area of all stories of the building and fire walls shall not be considered to create separate buildings. Buildings of entire R-Use, other than R-1 Occupancies and R-2 Dormitories, having no more than three dwelling units and also less than 12,000 aggregate sq. ft. shall be permitted to have an automatic fire suppression system installed in accordance with section 903.3.1.3 provided that every <i>automatic sprinkler system</i> shall have at least one automatic water supply or a stored water supply source in accordance with NFPA-13D where the minimum quantity of stored water shall equal the water demand rate times 20 minutes. Townhouses are required to be protected by <i>automatic sprinkler systems</i>.</p> <p>Note b – Group A-5. An <i>automatic sprinkler system</i> shall be provided in concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m²).</p> <p>Note c – Group B ambulatory health care facilities. An <i>automatic sprinkler system</i> shall be installed throughout all fire areas containing a Group B ambulatory health care facility occupancy when either of the following conditions exists at any time:</p> <ol style="list-style-type: none">1. Four or more care recipients are incapable of self-preservation.2. One or more care recipients who are incapable of self-preservation are located at other than the <i>level of exit discharge</i> serving such an occupancy. <p>Note d – Group E. An <i>automatic sprinkler system</i> shall be installed throughout every portion of educational buildings below the lowest <i>level of exit discharge</i> serving that portion of the building.</p> <p>Note e – Group F [Woodworking Operations]. An <i>automatic sprinkler system</i> shall be installed throughout buildings where there is a woodworking operation in excess of 2,500 square feet (232 m²) in area that generates finely divided combustible waste or uses finely divided combustible materials.</p> <p>Note f - Pyroxylin Plastics. An <i>automatic sprinkler system</i> shall be provided in buildings, or portions thereof, where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg).</p> <p>Note g - Bulk storage of tires. An <i>automatic sprinkler system</i> shall be provided throughout buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 m³).</p> <p>Note h - Group S-2. An <i>automatic sprinkler system</i> shall be provided for Group S-2 occupancies as follows: 1. Throughout buildings classified as Group S-2 Enclosed Parking. 2. Throughout Group S-2 Enclosed Parking located beneath other groups.</p> <p>Note i - Commercial Parking Garages. An <i>automatic sprinkler system</i> shall be provided throughout buildings having storage of commercial trucks or buses where the aggregate floor area used for parking exceeds 5,000 square feet (464 m²).</p>			

9.00: continued

903.3.1.1.1 Replace as follows:

903.3.1.1.1 Exempt Locations. *See* 903.2 Exceptions 1. through 7. and section 903.1.1.

903.3.1.3 Replace as follows:

903.3.1.3 NFPA 13D Sprinkler Systems. Only where allowed and utilized in accordance with Table 903.2 Note a, *automatic sprinkler systems* shall be permitted to be installed in accordance with NFPA 13D.

903.3.5 Add note:

Note. *See* 248 CMR and 310 CMR for backflow preventer requirements.

903.3.5.1.2 Replace as follows:

903.3.5.1.2 Combination Services. A single combination water supply shall be permitted provided that the domestic and/or commercial demand is added to the sprinkler demand as required by NFPA 13, NFPA 13D or NFPA 13R as applicable.

903.4.1 Replace as follows:

903.4.1 Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to one of the following NFPA 72 locations:

1. UL listed or FM approved central supervising station, or
2. Approved proprietary supervising station or approved remote supervising station, or
3. Alarm signals to an approved Auxiliary Fire Alarm System in accordance with NFPA 72, with supervisory signals supervised by method a or b identified above, or at a *constantly attended location* approved by the local fire department, having personnel on duty trained to recognize the type of signal received and to take prescribed action. This shall be permitted to be a location different from that at which alarm signals are received.

903.4.2 Replace as follows:

903.4.2 Alarms. Approved audible and visual alarm devices shall be connected to every water sprinkler system. Such alarm devices shall be activated by waterflow (equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system) and shall be located in an approved location on the exterior of the building and throughout the building in accordance with the requirements of section 907.

903.4.4 Add subsection:

903.4.4 Re-transmission of Alarm Signals Received by Central Stations and Received by Those Operating Approved Remote/Proprietary Station Fire Alarm System Supervising Stations. In all cases, central stations and those operating approved remote/proprietary station fire alarm system supervising stations shall re transmit alarm signals within 90 seconds of receipt, to the fire department having jurisdiction.

903.5 Add note:

Note. *See* section 901.3.

904.5.1 Add subsection:

904.5.1 Discharge Test. All systems shall be tested by a discharge of expellant gas through the piping and nozzles with observations being made of the flow of expellant gas through all nozzles as well as observing for leakage and continuity of piping with free unobstructed flow.

904.6.1 Add subsection:

904.6.1 Discharge Test. All systems shall be tested by a discharge of expellant gas through the piping and nozzles with observations being made of the flow of expellant gas through all nozzles as well as observing for leakage and continuity of piping with free unobstructed flow.

9.00: continued

904.12 Add subsection:

904.12 Water Spray Fixed Systems. Water spray fixed systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 15 and the listings contained therein.

904.13 Add subsection:

904.13 Water Mist Systems. Water mist systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 750 and the listings contained therein.

905.1 Replace as follows:

905.1 General. Standpipe systems shall be provided in new buildings and structures in accordance with this section. Fire hose threads used in connection with standpipe systems shall be *approved* by the fire official and shall be compatible with fire department hose threads. The location of fire department hose connections shall be *approved* by the head of the fire department. In buildings used for high-piled combustible storage, fire protection shall be in accordance with the *International Fire Code*.

905.2.1 Add subsection:

905.2.1 Standpipe System Piping Sizes. The riser piping, supply piping, and the water service piping shall be hydraulically sized in accordance with the provisions of NFPA-14.

Exception. The residual pressure(s) as noted in NFPA-14 are not required to be maintained in buildings less than 70 feet in height which are equipped throughout with an approved automatic fire suppression system. However, the system shall be designed to accommodate the outlet pressure and water flows in accordance with NFPA-14 and inlet pressures consistent with local fire department equipment.

905.2.2 Add subsection:

905.2.2 High-rise Buildings. High-rise buildings shall have each floor supplied by a minimum of two combination standpipe/sprinkler risers installed in accordance with the requirements of NFPA-14.

905.3.8 Add subsection:

905.3.8 High-piled Combustible Storage. A class I automatic wet or manual standpipe system shall be provided in all exit passageways of areas containing high-piled combustible storage.

905.3.9 Add subsection:

905.3.9 Travel Distance. A class I automatic wet or manual wet standpipe system shall be provided in all buildings where any portion of the building floor area is more than 400 feet of travel from the nearest point of fire department vehicle access. Vehicle access travel distance is actual distance measure along and/or around the building exterior and shall not be reduced by the addition of fire walls/party walls which otherwise would define individual buildings.

905.3.10 Add subsection:

905.3.10 Groups A-1 and A-2. Group A-1 and A-2 occupancies with occupant loads of more than 1,000, shall be equipped with a Class II standpipe system.

905.4.3 Add subsection:

905.4.3 1.5 Inch Reducer. A removable 1.5 inch reducer and cap shall be provided on all Class I outlets.

905.8 Replace as follows:

905.8 Standpipes. Where standpipe systems are required by this code, such systems shall be automatic wet systems.

9.00: continued

Exceptions:

1. When approved by the fire official, an automatic dry or semi-automatic dry standpipe system shall be permitted in areas subject to freezing.
2. A manual wet standpipe is permitted in buildings less than 70 feet in height which are equipped throughout with an approved automatic fire suppression system. However, the shall system shall be designed to obtain the outlet pressures and water flows in accordance with NFPA-14 with inlet pressure at the fire department connection that are consistent with local fire department equipment.

905.10 Replace as follows:

905.10 During Construction. Standpipes systems required during construction and demolition operations shall be provided in accordance with section 3311.0 and NFPA 241.

907.1.2.1 Add subsection:

907.1.2.1 Installer Identification. Shop drawings shall note the name(s), license number(s) and license expiration date(s) of the contractor(s) installing the *fire protection systems*.

907.2 Replace exception 2. as follows:

2. Where automatic sprinkler protection, installed in accordance with section 903.3.1.1 or 903.3.1.2, is provided and connected to the building fire alarm system, automatic heat detection per section 907.2 shall not be required.

907.2.1 Replace as follows:

907.2.1 Group A. A manual fire alarm system that activates the occupant notification system in accordance with section 907.5 shall be installed in Group A occupancies having an occupant load of 50 or more. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

907.2.1.1 Replace as follows:

907.2.1.1 System Initiation in Group A Occupancies with an Occupant Load of 300 or More. Activation of the fire alarm in Group A occupancies with an occupant load of 300 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with section 907.5.2.2.

Exception. Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

907.2.1.2 Add subsection:

907.2.1.2 A-2 Nightclub Use – Entertainment System Response. The activation of any *fire protection system* element (signaling system, detection, sprinklering, *etc.*) shall automatically:

1. Cause immediate illumination of all areas and components of the required means of egress, and additionally;
2. Cause immediate full activation of all other house lighting; and
3. Cause immediate stopping of any and all sounds and visual distractions (public address systems, entertainment and dance lighting, music, *etc.*) that conflict/compete with the fire protective signaling system.

907.2.2 Delete the exception, only

907.2.2.1 Delete the exception, only.

907.2.3 Replace as follows:

907.2.3 Group E. A manual fire alarm system that activates the occupant notification system with emergency voice/alarm communication capabilities in accordance with section 907.5 shall be installed in Group E Occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

9.00: continued

Exception. A manual fire alarm system is not required in Group E occupancies with an *occupant load* of less than 50.

907.2.4 Delete the exception.

907.2.6 Replace the exceptions with the single exception as follows:

Exception. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is *approved* by the *building official* and fire official.

907.2.6.1 Replace as follows:

907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in corridors, waiting areas open to corridors, sleeping areas and other habitable spaces other than kitchens. The system shall be activated in accordance with section 907.5.

907.2.6.3.3 Delete Exceptions 2 and 3 only.

907.2.7 Delete the exceptions.

907.2.8.1 Delete exception 2 only.

907.2.8.3.1 Add subsection:

907.2.8.3.1 Annunciation. In buildings that are not equipped throughout with an *automatic sprinkler system* installed in accordance with section 903.3.1.1 or section 903.3.1.2, the smoke detectors in guestrooms shall be connected to the buildings fire alarm systems for the purpose of notifying the guestroom occupants and shall be annunciated by guestroom at a constantly attended location from which the fire alarm system is capable of being manually activated.

907.2.8.3.2 Add subsection:

907.2.8.3.2 Addressable Fire Alarm Systems. Section 907.2.8.3 shall not preclude the installation of a fully addressable fire alarm system where system detectors and alarm notification devices can perform the functions are required in section 907.2.11.

907.2.9.1 Replace item 3. as follows:

3. The building contains more than 12 dwelling units or sleeping units.

907.2.9.1 Delete exception 2. only.

907.2.11 Replace as follows:

907.2.11 Single- and Multiple-station Smoke Alarms. Listed single- and multiple-station photoelectric type smoke alarms shall be installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72. Section 907.2.8 shall not preclude the installation of a fully addressable fire alarm system where system detectors and alarm notification devices can perform the functions as required in section 907.2.11.

907.2.12.2 Replace item 4. with the following:

4. Activate a prerecorded message, audible throughout the special amusement building, instructing patrons to proceed to the nearest exit. Alarm signals used in conjunction with the prerecorded message shall produce a sound which is distinctive from other sounds used during normal operation. The wiring to the auxiliary devices and equipment used to accomplish the above fire safety functions shall be monitored for integrity in accordance with NFPA 72.

9.00: continued

907.2.13 Replace as follows:

907.2.13 High-rise Buildings. High-rise buildings shall be provided with an automatic smoke detection system in accordance with section 907.2.13.1, a fire department communication system in accordance with section 907.2.13.2 and an emergency voice/alarm communication system in accordance with section 907.5.2.2.

907.2.15 Add exception as follows:

Exception. Buildings sprinklered throughout with automatic sprinklers

907.2.18.2 Replace as follows:

907.2.18.2 Alarm Required. : Activation of the smoke exhaust system shall activate an audible alarm at a *constantly attended location* and activate the alarm notification appliances throughout the building in accordance with section 907.3.

907.2.24 Add subsection:

907.2.24 Other Sleeping Areas. An automatic smoke detection system shall be provided for all sleeping areas, and means of egress from sleeping areas, of occupants capable of self-preservation in buildings not otherwise required to have smoke detectors by section 907.2.1 through 907.2.23 where any space is used for sleeping purpose.

907.3.3 Replace as follows:

907.3.3 Elevator Emergency Operation. Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of 524 CMR 17.00: *Power Passenger and Freight Elevators (For Installations Made Prior to July 1, 1989)*, 524 CMR 35.00: *Safety Code for Elevators and Escalators A17.1-2004 and the Massachusetts Modifications of That Code* and NFPA 72.

907.3.4 Replace as follows:

907.3.4 Wiring. The wiring to the auxiliary devices and equipment used to accomplish the above fire safety functions shall be monitored for integrity in accordance with 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* and NFPA 72.

907.4.1 Delete exception 2. only.

907.5.2.2 Add a second exception as follows:

2. In Group A with an occupant load of 300 or more where the head of the fire department or designee determines that partial or selective evacuation is not desired, but rather total evacuation is required, then a distinctive signal in *lieu* of a voice alarm is permitted.

907.5.2.2.5 Add subsection:

907.5.2.2.5 Evacuation. Where the head of the fire department or his/her designee determines that partial or selective evacuation is not desired but rather total evacuation is required, then a distinctive signal in *lieu* of a voice alarm is permitted.

907.5.2.3 Add a second sentence as follows:

Also refer to 521 CMR 40.00: *Alarms* for visible alarm requirements in buildings, or portions thereof, open to the public.

907.6.5 Replace as follows:

907.6.5 Monitoring. Fire alarm systems required by section 907 shall be monitored in accordance with section 903.4.1

Exception. Monitoring by a supervising station is not required for:

1. Single and multiple station smoke alarms required by section 907.2.11 in other than Groups R-1 and R-2 with more than 12 units.
2. Smoke detectors in Group I-3 Occupancies

9.00: continued

3. *Automatic sprinkler systems* and single- and multi-station smoke detectors in one- and two-family dwellings.
4. Smoke detectors in patient sleeping rooms in occupancies in Group I-2.

907.6.5.2 Add subsection:

907.6.5.2 Re-transmission of Alarm Signals. In all cases, central stations and those operating approved remote/proprietary station fire alarm system supervising stations shall re transmit alarm signals within 90 seconds of receipt, to the fire department having jurisdiction.

909.2 Replace as follows:

909.2 General Design Requirements. Buildings, structures or parts thereof required by this code to have a smoke control system or systems shall have such systems designed in accordance with the applicable requirements of Section 909 and the generally accepted and well-established principles of engineering relevant to the design. The *construction documents* shall include sufficient information and detail to adequately describe the elements of the design necessary for the proper implementation of the smoke control systems. These documents shall be accompanied by sufficient information and analysis to demonstrate compliance with these provisions.

An independent third party review is required for smoke control system designs incorporating performance analysis under Section 909 (design fire analysis, rational analysis, timed egress analysis), or the smoke control methods of Sections 909.6, 909.7, or 909.8 or other alternative design method selected by the *registered design professional*. The independent third party reviewer shall prepare a written report documenting the review, and submit it to the *registered design professional* and the building and fire officials. If all parties concur that the analyses are appropriate, the design may be approved pursuant to Section 104.11.

909.4.6.1 Add subsection:

909.4.6.1 Exhaust Method Smoke Control. When the exhaust method of section 909.8 is used, the rational analysis shall evaluate exposure of occupants exiting a space to smoke or tenability thresholds. Occupant exposure to smoke or tenability thresholds shall be determined by a timed egress analysis using a minimum duration of 1.5 times the calculated egress time. The smoke control system shall remain operational for the required duration.

909.6 Replace as follows:

909.6 Pressurization Method. When approved by the fire official, the primary mechanical means of controlling smoke shall be by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke control zone of fire origin.

909.15 Replace as follows:

909.15 Control Diagrams. Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the Fire Official and shall be kept on site adjacent to the fire alarm panel in a format and manner approved by the fire chief.

909.18.8.3.1 Replace as follows:

909.18.8.3.1 Report Filing. A copy of the final report shall be filed with the fire code official and *building official* and an identical copy shall be maintained in an *approved* location at the building.

909.20.6.1.1 I Add subsection:

909.20.6.1.1 Intake Duct Detection. An in duct smoke detector shall be installed just downstream of the fresh air fan. Activation of this detector shall annunciate at the control panel and shall shut down the fan for that particular smoke proof enclosure.

9.00: continued

909.21 Add subsection:

909.21 Maintenance. Smoke control systems shall be maintained to ensure to a reasonable degree that the system is capable of controlling smoke for the duration required. The system shall be maintained in accordance with the manufacturer's instructions and sections 909.21.1 through 909.21.5.

909.21.1 Schedule. A routine maintenance and operational testing program shall be initiated immediately after the smoke control system has passed the acceptance tests. A written schedule for routine maintenance and operational testing shall be established.

909.21.2 Written Record. A written record of smoke control system testing and maintenance shall be maintained on the premises. The written record shall include the date of the maintenance, identification of servicing personnel, and notification of any unsatisfactory condition and the corrective action taken, including parts replaced.

909.21.3 Testing. Operational testing of the smoke control system shall include all equipment such as initiating devices, fans, dampers, controls, doors and windows.

909.21.4 Dedicated Smoke Control Systems. Dedicated smoke control systems shall be operated for each control sequence semiannually. The system shall also be tested under standby power conditions.

909.21.5 Nondedicated Smoke Control Systems. Dedicated smoke control systems shall be operated for each control sequence annually. The system shall also be tested under standby power conditions.

912.3.4 Add subsection:

912.3.4 Height. Fire department connections shall not be less than 18 inches (457 mm) and not more than 42 inches (1067 mm) in elevation, measured from the ground level to the centerline of the inlets.

912.6 Add subsection:

912.6 Connections. Fire department connections shall be such that attachment to any one water sprinkler connection will serve all sprinklers, and attachment to any one standpipe connection will serve all standpipes within the building.

912.7 Add subsection:

912.7 Projection. Where the fire department connection will otherwise project beyond the property line or into the public way, a flush-type fire department connection shall be provided.

912.8 Add subsection:

912.8 Fittings. Fire department inlet connections shall be fitted with check valves, ball drip valves and plugs with chains or frangible caps.

913.2.1 Replace section and exceptions as follows:

913.2.1 Protection of Fire Pump Rooms. Fire pumps and all related equipment shall be located in a dedicated room meeting the physical and environmental features of NFPA 20 listed in Chapter 35, and enclosed with not less than two hours fire resistive construction.

913.2.2 Add subsection:

913.2.2 Fire Pump Room Access. Access to the fire pump room shall be directly from an exterior door at grade or through fire resistance rated enclosures. The enclosures must be rated equivalent to the fire pump room served, or greater if required by another provision of this code. Fire pump rooms shall be secured from unauthorized entry.

913.4 Replace as follows:

913.4 Valve Supervision. Where provided, the fire pump suction, discharge and bypass valves, and isolation valves on the backflow prevention device or assembly shall be supervised using the requirements of section 905.9.

9.00: continued

913.4.1 Delete this subsection.

913.5 Replace as follows:

913.5 Acceptance Rest. Acceptance testing shall be done in accordance with the requirements of NFPA 20 and section 901.5.

913.6 Add subsection:

913.6 Second Power Source. All electric driven fire pumps shall be provided with emergency power from an on-site emergency generator system set when the fire pump is installed as protection for a building or structure with any one of the following characteristics:

1. High-rise building
2. Use Group A with a total occupant load of more than 300 occupants.
3. Use Group E with a total occupant load of more than 300 occupants.
4. Use Group H
5. Use Group I having surgery or treatment areas.

915.1 Replace as follows:

915.1 General. Emergency responder radio coverage shall be provided in all new buildings in accordance with sections 915.2 and 915.3.

915.2 Add subsection:

915.2 Emergency Responder Radio Coverage in Buildings. All buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the fire official, a wired communication system in accordance with section 907.2.13.2 shall be permitted to be installed or maintained in *lieu* of an approved radio coverage system.
2. Where it is determined by the fire official that the radio coverage system is not needed.

915.3 Add subsection:

915.3 Radio Signal Strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements of sections 915.3.1 and 915.3.2

915.3.1 Add subsection:

915.3.1 Minimum Signal Strength into the Building. A minimum signal strength of -95 dBm shall be receivable within the building.

915.3.2 Add subsection:

915.3.2 Minimum Signal Strength out of the Building. A minimum signal strength of -100 dBm shall be received by the agency's radio system when transmitted from within the building.

916 Add section:

916 CARBON MONOXIDE PROTECTION

916.1 General. Carbon monoxide protection shall be provided in all occupancies with sleeping arrangements, and shall meet the requirements of 527 CMR 31.00: *Carbon Monoxide Alarms* and 248 CMR as listed in Chapter 35, in addition to this Code. Carbon monoxide alarms, carbon monoxide detectors and combination smoke/carbon monoxide alarms and combination smoke/carbon monoxide detectors described in sections 916.1.1 through 916.1.4 shall be installed and maintained in accordance with the provisions of this code, 527 CMR 31.00, 248 CMR, NFPA 72 and NFPA 720.

9.00: continued

916.1.1 Carbon Monoxide Alarms. Single- or multiple-station carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 2034.

916.1.2 Carbon Monoxide Detectors. Carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 2075.

916.1.3 Combination Smoke/Carbon Monoxide Alarms. Combination smoke/carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 217 and ANSI/UL 2034. The smoke alarm shall utilize photoelectric sensing technology.

916.1.4 Combination Smoke/Carbon Monoxide Detectors. Combination smoke/carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 268 and ANSI/UL 2075. The smoke alarm shall utilize photoelectric sensing technology.

916.2 Primary Power to CO Alarms/Detectors. Required carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall receive their power by one of the following means:

1. Listed carbon monoxide alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source and without a disconnecting switch other than those required for overcurrent protection. Listed carbon monoxide alarms that are only battery-powered, plug-in or plug-in with battery backup shall not be permitted in new construction.
2. Listed carbon monoxide detectors shall receive their power from the approved control panel. The approved control panel shall receive its primary power from the building wiring when such wiring is served from a commercial source and without a disconnecting switch other than those required for overcurrent protection.
3. Listed low-power radio frequency (wireless) detectors shall be permitted to be battery powered when the battery is electrically supervised and shall be capable of sending an alarm signal to the approved control panel for a minimum of seven days after sending the initial battery depletion signal.

916.2.1 Secondary Power to CO Alarms/Detectors. All CO alarms/detectors shall have secondary (standby power supplied from monitored batteries or other recognized sources of secondary power in accordance with NFPA 72. For fire alarm control units (panels), the panel battery can serve as the source of secondary electrical power. For wireless systems, the panel battery can serve as the source of secondary electrical power.

916.3 Interconnection. Where more than one listed carbon monoxide alarm or combination smoke/carbon monoxide alarm is required to be installed within a dwelling unit they shall be interconnected in such a manner that the activation of one carbon monoxide alarm or combination smoke/carbon monoxide detector shall activate the carbon monoxide audible notification devices throughout the individual dwelling unit by the detector or separate notification device.

916.4 Installation Requirements. All carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall be UL 2034 listed or UL 2075 listed, as applicable, and installed in accordance with the provisions of this code, the manufacturer's instructions, the listing criteria, 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* and NFPA 720.

916.5 Alarm Signal Precedence. Carbon monoxide alarms/detectors shall be compatible with all interconnected fire detection devices and fire alarm signals shall have precedence over carbon monoxide alarm signals in accordance with the applicable requirements of NFPA 720.

916.5.1 Notification Devices. Where visual and audible notification are via separate lighting and sounding devices, such devices shall be compatible with the fire protection system and installed in accordance with the requirements of 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*.

9.00: continued

917Add section:

917 PRIVATE UNDERGROUND FIRE MAINS AND YARD HYDRANTS

917.1 Private Underground Fire Mains and Yard Hydrants. Fire hydrants and underground fire mains installed on private property shall be located and installed as approved by the head of the fire department. Hydrants shall conform to the standards of the administrative authority of the jurisdiction and the fire department. Hydrants shall not be installed on a water main less than six inches in diameter. Standards of construction shall be in accordance with NFPA 24 as listed in Chapter 35.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 10: MEANS OF EGRESS****1001.3.1** Add subsection:

1001.3.1 Maintenance of Exterior Stairs and Fire Escapes. All exterior stairways and fire escapes shall be kept free of snow and ice. Exterior stairways and fire escapes constructed of materials requiring the application of weather protecting products, shall have these products applied in an approved manner and shall be applied as often as necessary to maintain the stairways and fire escapes in safe condition. Weather resistant structural fasteners and connections shall tie the stairways and fire escapes directly into the building structural system.

1001.3.2 Add section:

1001.3.2 Testing and Certification. All exterior bridges, steel or wooden stairways, fire escapes and egress balconies shall be examined and/or tested, and certified for structural adequacy and safety every five years, by a *registered design professional*, or others qualified and acceptable to the *building official*; said professional or others shall then submit an affidavit to the *building official*.

1005.1 Replace exception with these three exceptions:**Exceptions:**

1. *Means of egress* complying with section 1028.
2. For other than H and I-2 occupancies, the total width of *means of egress* in inches (mm) shall not be less than the total occupant load served by the *means of egress* multiplied by 0.2 inches (5.1 mm) per occupant for stairways and by 0.15 inches (3.8 mm) per occupant for other egress components in buildings that are provided with sprinkler protection in accordance with 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with 907.5.2.2
3. For *existing buildings* that meet all other requirements of Exception 2., the emergency voice/alarm communication system is not required

1007.4 Add before 'section 2.27' and 'Chapter 27' this text: '524 CMR and'**1007.4** Add at the end of exception 2. this text: ', unless otherwise required by 521 CMR'**1007.5** Replace the text 'in section 1109.7, Items 1 through 9.' with this text: 'per 521 CMR. Platform lifts shall be installed in accordance with 524 CMR.'**1007.6.2** Add an exception 2.

2. Areas of refuge, and areas served by them, if equipped throughout with an *automatic sprinkler system* installed in accordance with section 903.3.1.1.

1008.1.9.7 Add a second exception to item 4. as follows:

Exception 2. In Use Group B buildings where one tenant occupies the entire floor and the building has a security station staffed 24 hours each day, the installation of a door release device may be omitted on egress doors in elevator lobbies provided that all other items in this section are met, and in addition, the following items are met:

- a. The building is equipped throughout with both a supervised automatic fire sprinkler system and a supervised automatic fire alarm system.
- b. The supervised automatic fire sprinkler system and the supervised fire alarm system shall interface with the access control system to unlock the doors automatically upon activation of either system.
- c. The elevator lobby shall be equipped with a telephone connected directly to the staffed security station and a sign having block letters one inch in height shall be provided directly above the telephone and shall state: "In case of emergency, pick up telephone. You will be connected directly to security personnel".

10.00: continued

1008.1.9.11 Add subsection:

1008.1.9.11 Exterior Doors and Locks to Apartment Houses. In accordance with M.G.L. c. 143, § 3R, at least one of the doors of the main common entryway into every apartment house having more than three apartments shall be designed or equipped as to close automatically and lock automatically with a lock, including a lock with an electrically-operated striker mechanism, a self-closing door and associated equipment. Such associated equipment shall include an intercom system tied independently to each apartment and where from each apartment the electrically operated striker mechanism can be released; additionally, where the number of apartments in a given building, irrespective of fire/party wall separation, is ten or more apartments, a closed circuit security camera system shall also be incorporated in such manner that from each apartment, apartment occupants can utilize their personal television sets to observe who is seeking entrance to the building. The intercom and closed circuit security camera systems shall be designed and listed for the weather and temperature conditions to which they will be exposed.

Exception. Lodging houses defined in M.G.L. c. 140, § 22; dormitories of charitable, educational or philanthropic institutions; or projects of housing authorities, as defined in M.G.L. c. 121B.

1010.1 Add a second sentence to read as follows: 'Wherever ICC A117.1 is referenced in this section, reference instead shall be to 521 CMR instead.'

1011.1.1 Add subsection:

1011.1.1 Electrical Rooms. Electrical rooms governed by section 1008.1.10 shall have installed additional exit signage such that the top of the sign is within 18 inches of the floor and adjacent to only one side of the door

1016.1.1 Add subsection:

1016.1.1 Exit Travel Distance Increase for F-1 or S-Uses. In buildings which are one story in height, equipped with automatic heat and smoke roof vents complying with section 910.0 and equipped throughout with an *automatic sprinkler system* in accordance with section 903.3.1.1, the maximum exit access travel distance shall be 400 feet (122 m) for occupancies in Group F-1 or S.

1028.2 Add a second paragraph as follows:

For buildings or portions thereof that are classified as A-2 Nightclubs and which have an occupant load of 50 or greater, the main entrance egress system shall be sized such that the width of all required means of egress elements is 72 inches (nominal) or otherwise such main entrance egress system shall be sized in accordance with the applicable portions of this chapter, whichever criteria results in the larger required means of egress system but in no case shall the main entrance egress system be less than 72 inches in nominal width, including the main entrance/exit door system and the main entrance/exit door system shall consist of a pair of side-hinged swinging type doors without a center mullion and shall be equipped with panic hardware.

1028.2 To the exception add a last sentence as follows:

For buildings or portions thereof that are classified as A-2 Nightclubs and which have an occupant load of 50 or greater this exception does not apply.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 11: ACCESSIBILITY

1101.1 Replace as follows:

1101.1 Scope. In accordance with M.G.L. c. 22, § 13A all public buildings shall be designed to be accessible to, and functional and safe for the use by, physically disabled persons, and conform to the requirements of 521 CMR. In accordance with M.G.L. c. 143, § 3, 521 CMR shall be enforced by the *building official* or the state inspector, as applicable.

1101.2, and **1102** through **1110** Delete these sections.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 12: INTERIOR ENVIRONMENT**

1203.2 Add two exceptions as follows:

Exceptions:

1. Roof assemblies where an expanding spray foam insulation material, providing at least 40% of the total R-value of the required insulation, is in direct contact with the underside of the roof deck and adjacent framing members. If the permeability of the foam material is less than two perm-inch, no vapor barrier is necessary.
2. Roof assemblies where a board foam plastic insulation material, providing at least 40% of the total R-value of the required insulation, is placed on top of the roof deck. If the permeability of the foam material is less than two perm-inch, no vapor barrier is necessary.

When either exception 1 or 2 is taken, the following conditions must also be satisfied:

- a. The roof assembly, including the wall-to-eave- to-roof deck connection must be made air-tight, per Chapter 13 as applicable *and*,
- b. Thermal barrier requirements, if any, shall be per Chapter 26 as applicable *and*,
- c. The roof assembly must meet the fireresistance rating requirements of this code, when and as applicable *and*,
- d. Roofing material must be listed/warranted by its manufacturer for use in an unvented roof system.

1203.4.2.1 At the end of the section add this text:

Natural ventilation methods such as openable windows shall not substitute for mechanical ventilation. Such bathroom exhaust shall vent directly to the outside and no exhaust vent shall terminate in attics or other interior portions of the building.

1203.5 Replace 'shall be provided as required by both codes' with 'or 527 CMR shall be provided.'

1205.4.1: Replace 'NFPA 70' with '527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*'

1209.4 Add subsection:

1209.4 Air Sealing. Doors, trap doors, scuttles, and other openings separating conditioned from unconditioned space shall be fitted with gaskets, weather strips *etc.* and such openings shall close tight to minimize air transfer between conditioned and unconditioned space (also *see* Chapter 13).

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 13: ENERGY EFFICIENCY****1301.1.1** Replace as follows:

1301.1.1 Criteria. Buildings shall be designed and constructed in accordance with the *International Energy Conservation Code 2009 (IECC 2009)* with Massachusetts Amendments as follows:

101.2 Add a second sentence as follows:

These Massachusetts Amendments, intended to expressly apply to *IECC 2009*, are also to apply in intent to ASHRAE 90.1.

101.5.2 Change title of this section to read:**101.5.2 Low Energy Buildings and Exempt Buildings.****101.5.2** Add 2 exemptions as follows:

3. Portions of aircraft hangars where aircraft are housed or stored and/or aircraft servicing, repairs or alterations may occur are exempt from the provisions of Chapter 13 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 13.00).
4. Greenhouses that are free-standing, or attached to a building and separated by a wall having the same thermal value as an exterior wall, and provided with a separate temperature control system.

101.5.3 Add subsection:

101.5.3 Heating, Pumping, Process Piping and Refrigeration Systems. Heating, pumping, process piping and refrigeration systems shall be installed by contractors and personnel appropriately licensed in the Commonwealth of Massachusetts. Engineered designs and specifications prepared by *registered design professionals* shall identify systems requiring compliance with appropriate sections of M.G.L. c. 146 and the regulations of the Bureau of Pipefitters & Refrigeration Technicians found in 528 CMR. Shop drawings and design layout prepared by licensed installing contractors shall note the name(s), license number(s) and license expiration date(s) of the contractor(s) installing the heating, pumping, process piping and refrigeration systems.

103.2 After the existing paragraph add the text as follows:

The construction documents shall contain sufficient information to completely describe the heating, ventilation, and air conditioning (HVAC); lighting; and electric power distribution systems, including operational features and controls. The information required for each system shall include:

1. A description of the design intent providing a detailed explanation of the ideas, concepts and criteria that are defined by the owner to be important.
2. A description of the basis of design of the systems including all information necessary to prepare a design to accomplish the design intent.
3. A description of the sequence of operation of the systems and their interaction with other systems, including fire prevention and fire protection systems.
4. A description of the systems including the capacities of the equipment or systems.
5. A description of the testing requirements and the criteria for passing to be used for final systems acceptance.
6. Submittal of manuals and maintenance manuals as a condition of final acceptance, and a description of their format and content. The operation manual shall provide all relevant information needed for day-to-day operation and management of each system. The maintenance manual shall describe equipment inventory and support the maintenance program.

The format and content of operation and maintenance manuals, that shall be submitted as a condition of final acceptance. The operation manual shall provide all relevant information needed for day-to-day operation and management of each system. The maintenance manual shall describe equipment inventory and support the maintenance program.

13.00: continued

7. Submittal of record drawings and control documents as a condition of final acceptance, per Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00).

103.3.1 Add a third paragraph to read as follows:

Approval by the *building official* of the design concepts, testing procedures, and acceptance criteria of section 103.2, items 1. through 7., is not required, but the *building official* shall reject the construction documents if these sections are incomplete, or if they specify any design elements that violate other requirements.

103.5 Replace as follows:

103.5 Retention of Construction Documents. Sets of approved construction documents shall be retained by the *building official* in accordance with M.G.L. c. 66, § 8.

103.6 Add subsection:

103.6 Design. All HVAC, lighting, and electric power distribution systems including sequence of operation, controls and supporting documentation shall be designed and specified by a *registered design professional* or other qualified person as provided in M.G.L. c. 143, § 54A and any profession or trade as provided in M.G.L. c. 112, § 60L and M.G.L. c. 112, § 81R. The responsible party shall review and certify that all submittals and shop drawings conform to the approved HVAC, lighting, and electric power distribution construction documents as submitted for the building permit and approved by the *building official*.

103.7 Add subsection:

103.7 Acceptance. A certificate of occupancy shall not be issue until the *building official* or his designees have witnessed a satisfactory test of all HVAC, lighting control, and electric power distribution systems installed in accordance with the construction documents. All systems shall be tested in accordance with the applicable standards of 780 CMR. In addition, the following documents shall be submitted to the *building official* prior to the issuance of a permanent certificate of occupancy.

1. Certification from the *registered design professional* stating that the HVAC, lighting, and electric power distribution systems have been installed in substantial accord with the approved construction documents.
2. Confirmation by the building owner or authorized representative that they have received all HVAC, lighting, and electric power distribution system record drawings from the installing contractors and that the responsible party of the system design has reviewed the drawings and confirmed reasonable accuracy of same.
3. Confirmation by the building owner or authorized representative that they have received all test reports, controls documentation, operation manual(s) and maintenance manual(s).

Exception. In *lieu* of witnessing a satisfactory functional test, the *building official* or their designees may accept a final performance acceptance test report from a *registered design professional* or other legally recognized professional (M.G.L. c. 112, § 81R). Said report shall certify that the systems have been tested and satisfactorily meet their performance requirements.

103.7.1 Add subsection:

103.7.1 Conditional Acceptance. The requirements of this Chapter shall not preclude the issuance of a temporary certificate of occupancy by the *building official* in accordance with section 111 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 111) as long as it can be demonstrated that compliance can be accomplished with the building occupied.

13.00: continued

109.1 through 109.3 Replace with this section:

109.1 General. Appeal of actions or inactions of the *building official*, shall be in accordance with section 113 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 113).

202 Add two definitions as follows:

CONTINUOUS AIR BARRIER. The combination of interconnected materials and assemblies joined and sealed together with flexible joints that provide the air-tightness of the building envelope above and below grade that separate conditioned from unconditioned space.

OUTDOOR AIR. Air taken from the outdoors, and therefore not previously circulated through the system.

302.1 Add this exception:

Exception. Buildings or portions of buildings which require different temperatures and humidity, such as, but not limited to, hospitals, laboratories, museums, art galleries, supermarkets, thermally sensitive equipment rooms, archival storage facilities, may require the use of alternative indoor design conditions. Any such use of alternative indoor design conditions shall be documented by a *registered design professional*.

TABLE 303.1.3(2) Add these door types and their respective U-FACTOR:

Glass	0.92
Air Lock Entry	0.50
Revolving	0.50
Overhead	1.45

502.2.6.1 Add subsection:

502.2.6.1 Required Insulation Under Slabs on Grade. The entire area of the slab on grade shall be insulated with a minimum of R5 rigid insulation in the following buildings: E-Use (K-12, including I-Use and E-Use daycare); buildings of use groups R-1, R-2, I-1 and I-2, and; college and university buildings of B and A use groups.

502.4.1 Add a second exception:

2. For garage doors, air leakage determined by a test, at standard test conditions in accordance with ANSI/DASMA 105, shall be an acceptable alternate for compliance with air leakage requirements.

502.4.3 Replace the section in its entirety with this subsection:

502.4.3 Air Barriers. The building envelope shall be designed and constructed with a *continuous air barrier* to control air leakage into, or out of the *conditioned space*. An *air barrier* shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the *conditioned space* by more than 50% of the difference between the *conditioned space* and design ambient conditions. The *continuous air barrier* shall have the following characteristics:

1. Materials used shall have an air permeance not to exceed 0.004 cfm/ft² under a pressure differential of 0.3 in. water column (1.57 psf) (75Pa) when tested in accordance with ASTM E 2178 and shall be taped or sealed in accordance with the manufacturer's instructions.
2. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.
3. Barrier materials shall be maintainable, or, if inaccessible, shall meet durability requirements for the service life of the envelope assembly.

13.00: continued

4. The air barrier material of an envelope assembly shall be joined and sealed in a flexible manner to the air barrier material of adjacent assemblies, to allow for the relative movement of assemblies due to thermal and moisture variations and creep. Connection shall be made between:

- a. Foundation and walls.
- b. Walls and windows or doors.
- c. Different wall systems.
- d. Wall and roof.
- e. Wall and roof over unconditioned space.
- f. Walls, floor and roof across construction, control and expansion joints.
- g. Walls, floors and roof to utility, pipe and duct penetrations.

502.4.3.1 Add subsection:

502.4.3.1 Air Barrier Penetrations. All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made air tight.

502.4.9 Add subsection:

502.4.9 Doors and Access Openings Leading to Shafts, Chutes, Stairwells, and Elevator Lobbies. These doors and access openings shall either meet the requirements of Section 502.4.3 or shall be equipped with weatherseals.

Exception. Weatherseals on elevator lobby doors are not required when a smoke control system is installed in accordance with Chapter 9 of the *2009 International Building Code* with Massachusetts Amendments (780 CMR 9.00).

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 14: EXTERIOR WALLS

1403.5 Replace the first sentence with:

‘For buildings in flood hazard areas as established in section 1612.2, exterior walls extending below the elevation required in Appendix G shall be resistant to water damage.’

NON-TEXT PAGE

CHAPTER 15: ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

There are no amendments to Chapter 15.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 16: STRUCTURAL DESIGN****1603.1** Add a third sentence as follows:

When structural components, assemblies, or systems are designed by a *registered design professional* under the control of the contractor, and said designs are not included with the application for permit, said designs shall be submitted to the *building official* with an application for amendment to the permit.

1603.1.7 Replace 'on the community's Flood Insurance Rate Map (FIRM)' with 'of the *base flood elevation*'.**1604.11** Add subsection:

1604.11 Snow, Wind and Earthquake Design Factors. Ground snow load, p_g , basic wind speed (three second gust speed), V , and earthquake response accelerations for the maximum considered earthquake, S_s and S_1 , for each city and town in Massachusetts shall be as given in Table 1604.11.

Exception. For ground snow load and basic wind speeds for R-3 one- and two-family dwellings of three stories or less, *see* 780 CMR One- and Two-family Dwellings.

TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE DESIGN FACTORS

City/Town	p_g	V	S_s	S_1	City/Town	p_g	V	S_s	S_1
Abington	45	110	0.26	0.064	Medford	45	105	0.29	0.070
Acton	55	100	0.29	0.071	Medway	55	100	0.25	0.065
Acushnet	45	110	0.23	0.058	Melrose	45	105	0.30	0.070
Adams	65	90	0.22	0.068	Mendon	55	100	0.24	0.064
Agawam	55	100	0.23	0.065	Merrimac	55	110	0.35	0.077
Alford	65	90	0.22	0.066	Methuen	55	110	0.34	0.076
Amesbury	55	110	0.35	0.077	Middleborough	45	110	0.24	0.061
Amherst	55	100	0.23	0.067	Middlefield	65	100	0.22	0.066
Andover	55	110	0.32	0.075	Middleton	45	110	0.32	0.073
Aquinnah (see Gay Head)					Milford	55	100	0.24	0.065
Arlington	45	105	0.29	0.069	Millbury	55	100	0.24	0.065
Ashburnham	65	100	0.27	0.072	Millis	55	100	0.25	0.065
Ashby	65	100	0.28	0.072	Millville	55	100	0.24	0.064
Ashfield	65	100	0.22	0.068	Milton	45	105	0.27	0.066
Ashland	55	100	0.25	0.066	Monroe	65	100	0.22	0.069
Athol	65	100	0.25	0.070	Monson	55	100	0.23	0.065
Attleboro	55	110	0.24	0.062	Montague	65	100	0.23	0.068
Auburn	55	100	0.23	0.065	Monterey	65	90	0.22	0.066
Avon	55	100	0.26	0.064	Montgomery	65	100	0.23	0.066
Ayer	65	100	0.28	0.071	Mnt Washington	65	90	0.23	0.066
Barnstable	35	120	0.20	0.054	Nahant	45	110	0.30	0.070
Barre	55	100	0.24	0.068	Nantucket	35	120	0.15	0.047
Becket	65	90	0.22	0.066	Natick	55	100	0.26	0.067
Bedford	55	100	0.29	0.071	Needham	55	100	0.27	0.067
Belchertown	55	100	0.23	0.066	New Ashford	65	90	0.22	0.068
Bellingham	55	100	0.24	0.064	New Bedford	45	110	0.23	0.058
Belmont	45	105	0.28	0.069	New Braintree	55	100	0.23	0.067
Berkley	55	110	0.24	0.061	New Marlborough	65	90	0.23	0.066
Berlin	55	100	0.26	0.068	New Salem	65	100	0.24	0.068
Bernardston	65	100	0.23	0.070	Newbury	55	110	0.35	0.076
Beverly	45	110	0.32	0.072	Newburyport	55	110	0.35	0.077
Billerica	55	100	0.30	0.072	Newton	55	105	0.27	0.068
Blackstone	65	100	0.24	0.064	Norfolk	55	100	0.25	0.065
Blandford	65	100	0.23	0.066	N. Adams	65	90	0.22	0.069
Bolton	55	100	0.26	0.069	N. Andover	55	110	0.33	0.075

16.00: continued

TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE
DESIGN FACTORS - continued

City/Town	P _s	V	S _s	S _i	City/Town	P _s	V	S _s	S _i
Boston	45	105	0.29	0.068	N. Attleborough	55	110	0.24	0.063
Bourne	35	120	0.21	0.056	N. Brookfield	55	100	0.23	0.066
Boxborough	55	100	0.28	0.070	N. Reading	55	105	0.32	0.073
Boxford		110	0.33	0.075	Northampton	55	100	0.22	0.066
Boylston	55	100	0.25	0.067	Northborough	55	100	0.25	0.067
Braintree	45	105	0.27	0.066	Northbridge	55	100	0.24	0.065
Brewster	35	120	0.18	0.052	Northfield	65	100	0.24	0.070
Bridgewater	45	110	0.24	0.062	Norton	55	110	0.24	0.063
Brimfield	55	100	0.23	0.065	Norwell	45	110	0.26	0.064
Brockton	45	110	0.25	0.064	Norwood	55	100	0.26	0.065
Brookfield	55	100	0.23	0.065	Oak Bluffs	35	120	0.18	0.051
Brookline	45	105	0.28	0.068	Oakham	55	100	0.24	0.067
Buckland	65	100	0.22	0.068	Orange	65	100	0.24	0.070
Burlington	55	105	0.30	0.071	Orleans	35	120	0.18	0.051
Cambridge	45	105	0.28	0.068	Otis	65	90	0.23	0.066
Canton	55	100	0.26	0.066	Oxford	55	100	0.23	0.065
Carlisle	55	100	0.29	0.071	Palmer	55	100	0.23	0.066
Carver	45	110	0.24	0.060	Paxton	55	100	0.24	0.067
Charlemont	65	100	0.22	0.068	Peabody	45	110	0.31	0.072
Charlton	55	100	0.23	0.065	Pelham	55	100	0.23	0.067
Chatham	35	120	0.17	0.050	Pembroke	45	110	0.25	0.063
Chelmsford	55	100	0.30	0.073	Pepperell	65	100	0.30	0.073
Chelsea	45	105	0.29	0.069	Peru	65	90	0.22	0.067
Cheshire	65	90	0.22	0.068	Petersham	65	100	0.24	0.068
Chester	65	100	0.22	0.066	Phillipston	65	100	0.24	0.069
Chesterfield	65	100	0.22	0.067	Pittsfield	65	90	0.22	0.067
Chicopee	55	100	0.23	0.066	Plainfield	65	100	0.22	0.068
Chilmark	35	120	0.18	0.051	Plainville	55	100	0.24	0.063
Clarksburg	65	90	0.22	0.069	Plymouth	45	110	0.24	0.060
Clinton	55	100	0.26	0.068	Pympton	45	110	0.24	0.061
Cohasset	45	110	0.27	0.066	Princeton	65	100	0.25	0.069
Colrain	65	100	0.23	0.069	Provincetown	35	120	0.22	0.058
Concord	55	100	0.29	0.070	Quincy	45	105	0.27	0.067
Conway	65	100	0.22	0.068	Randolph	45	105	0.26	0.065
Cummington	65	100	0.22	0.067	Raynham	55	110	0.24	0.062
Dalton	65	90	0.22	0.067	Reading	55	105	0.31	0.072
Danvers	45	110	0.32	0.073	Rehoboth	55	110	0.24	0.062
Dartmouth	45	110	0.23	0.058	Revere	45	105	0.30	0.070
Dedham	55	100	0.26	0.066	Richmond	65	90	0.22	0.067
Deerfield	65	100	0.23	0.068	Rochester	45	110	0.23	0.059
Dennis	35	120	0.19	0.052	Rockland	45	110	0.26	0.064
Dighton	55	110	0.24	0.061	Rockport	45	110	0.33	0.073
Douglas	55	100	0.23	0.064	Rowe	65	100	0.22	0.069
Dover	55	100	0.26	0.066	Rowley	55	110	0.34	0.075
Dracut	55	100	0.33	0.075	Royalston	65	100	0.25	0.070
Dudley	55	100	0.23	0.064	Russell	65	100	0.23	0.066
Dunstable	65	100	0.31	0.074	Rutland	55	100	0.24	0.068
Duxbury	45	110	0.25	0.062	Salem	45	110	0.31	0.071
E. Bridgewater	45	110	0.25	0.063	Salisbury	55	110	0.35	0.077
E. Brookfield	55	100	0.23	0.066	Sandisfield	65	90	0.23	0.066
E. Longmeadow	55	100	0.23	0.065	Sandwich	35	120	0.22	0.058
Eastham	35	120	0.19	0.052	Saugus	45	110	0.30	0.070
Easthampton	55	100	0.23	0.066	Savoy	65	90	0.22	0.068

16.00: continued

**TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE
DESIGN FACTORS - continued**

City/Town	p _g	V	S _s	S ₁	City/Town	p _g	V	S _s	S ₁
Easton	55	110	0.25	0.064	Scituate	45	110	0.27	0.065
Edgartown	35	120	0.18	0.050	Seekonk	55	110	0.24	0.062
Egremont	65	90	0.23	0.066	Sharon	55	100	0.25	0.065
Erving	65	100	0.23	0.069	Sheffield	65	90	0.23	0.066
Essex	45	110	0.33	0.073	Shelburne	65	100	0.23	0.068
Everett	45	105	0.29	0.069	Sherborn	55	100	0.26	0.066
Fairhaven	45	110	0.22	0.057	Shirley	65	100	0.28	0.072
Fall River	45	110	0.23	0.059	Shrewsbury	55	100	0.25	0.067
Falmouth	35	120	0.20	0.054	Shutesbury	65	100	0.23	0.068
Fitchburg	65	100	0.27	0.071	Somerset	55	110	0.23	0.060
Florida	65	90	0.22	0.069	Somerville	45	105	0.28	0.069
Foxborough	55	100	0.25	0.064	South Hadley	55	100	0.23	0.066
Framingham	55	100	0.26	0.067	Southampton	55	100	0.23	0.066
Franklin	55	100	0.24	0.064	Southborough	55	100	0.26	0.067
Freetown	45	110	0.23	0.060	Southbridge	55	100	0.23	0.064
Gardner	65	100	0.26	0.070	Southwick	55	100	0.23	0.065
Gay Head (Aquinnah)	35	120	0.18	0.051	Spencer	55	100	0.23	0.066
Georgetown	55	110	0.34	0.075	Springfield	55	100	0.23	0.065
Gill	65	100	0.23	0.069	Sterling	55	100	0.26	0.069
Gloucester	45	110	0.33	0.073	Stockbridge	65	90	0.22	0.066
Goshen	65	100	0.22	0.067	Stoneham	45	105	0.30	0.071
Grafton	55	100	0.24	0.066	Stoughton	55	100	0.26	0.065
Gosnold	35	120	0.19	0.053	Stow	55	100	0.27	0.069
Granby	55	100	0.23	0.066	Sturbridge	55	100	0.23	0.065
Granville	65	100	0.23	0.066	Sudbury	55	100	0.27	0.069
Great Barrington	65	90	0.22	0.066	Sunderland	65	100	0.23	0.068
Greenfield	65	100	0.23	0.069	Sutton	55	100	0.24	0.065
Groton	65	100	0.30	0.073	Swampscott	45	110	0.30	0.070
Groveland	55	110	0.34	0.076	Swansea	55	110	0.24	0.061
Hadley	55	100	0.23	0.067	Taunton	55	110	0.24	0.062
Halifax	45	110	0.25	0.062	Templeton	65	100	0.25	0.070
Hamilton	45	110	0.33	0.074	Tewksbury	55	100	0.31	0.073
Hampden	55	100	0.23	0.065	Tisbury	35	120	0.18	0.052
Hancock	65	90	0.22	0.068	Tolland	65	100	0.23	0.066
Hanover	45	110	0.26	0.064	Topsfield	45	110	0.33	0.074
Hanson	45	110	0.25	0.063	Townsend	65	100	0.28	0.072
Hardwick	55	100	0.23	0.067	Truro	35	120	0.22	0.057
Harvard	55	100	0.28	0.070	Tyngsborough	55	100	0.31	0.074
Harwich	35	120	0.18	0.051	Tyringham	65	90	0.22	0.066
Hatfield	55	100	0.22	0.067	Upton	55	100	0.24	0.065
Haverhill	55	110	0.35	0.077	Uxbridge	55	100	0.24	0.064
Hawley	65	100	0.22	0.068	Wakefield	45	105	0.31	0.071
Heath	65	100	0.22	0.069	Wales	55	100	0.23	0.065
Hingham	45	110	0.27	0.066	Walpole	55	100	0.25	0.065
Hinsdale	65	90	0.22	0.067	Waltham	55	105	0.28	0.069
Holbrook	45	105	0.26	0.065	Ware	55	100	0.23	0.066
Holden	55	100	0.25	0.068	Wareham	45	110	0.23	0.058
Holland	55	100	0.23	0.064	Warren	55	100	0.23	0.066
Holliston	55	100	0.25	0.066	Warwick	65	100	0.24	0.070
Holyoke	55	100	0.23	0.066	Washington	65	90	0.22	0.067
Hopedale	55	100	0.24	0.065	Watertown	45	105	0.28	0.068
Hopkinton	55	100	0.25	0.066	Wayland	55	100	0.27	0.068
Hubbardston	65	100	0.25	0.069	Webster	55	100	0.23	0.064

16.00: continued

TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE DESIGN FACTORS - continued

City/Town	p_g	V	S_s	S_1	City/Town	p_g	V	S_s	S_1
Hudson	55	100	0.26	0.068	Wellesley	55	100	0.27	0.067
Hull	45	110	0.28	0.067	Wellfleet	35	120	0.20	0.054
Huntington	65	100	0.22	0.066	Wendell	65	100	0.23	0.069
Ipswich	45	110	0.34	0.074	Wenham	45	110	0.32	0.073
Kingston	45	110	0.24	0.061	W. Boylston	55	100	0.25	0.067
Lakeville	45	110	0.24	0.061	W. Bridgewater	45	110	0.25	0.063
Lancaster	55	100	0.27	0.070	W. Brookfield	55	100	0.23	0.066
Lanesborough	65	90	0.22	0.068	W. Newbury	55	110	0.35	0.077
Lawrence	55	110	0.33	0.075	W. Springfield	55	100	0.23	0.065
Lee	65	90	0.22	0.066	W. Stockbridge	65	90	0.22	0.066
Leicester	55	100	0.24	0.066	W. Tisbury	35	120	0.18	0.052
Lenox	65	90	0.22	0.067	Westborough	55	100	0.25	0.067
Leominster	65	100	0.26	0.070	Westfield	55	100	0.23	0.066
Leverett	65	100	0.23	0.068	Westford	55	100	0.30	0.073
Lexington	55	105	0.29	0.070	Westhampton	65	100	0.22	0.066
Leyden	65	100	0.23	0.069	Westminster	65	100	0.26	0.071
Lincoln	55	100	0.28	0.069	Weston	55	100	0.27	0.068
Littleton	55	100	0.29	0.071	Westport	45	110	0.23	0.058
Longmeadow	55	100	0.23	0.065	Westwood	55	100	0.26	0.066
Lowell	55	100	0.31	0.074	Weymouth	45	105	0.27	0.066
Ludlow	55	100	0.23	0.066	Whately	65	100	0.22	0.067
Lunenburg	65	100	0.28	0.071	Whitman	45	110	0.25	0.063
Lynn	45	110	0.31	0.071	Wilbraham	55	100	0.23	0.065
Lynnfield	45	110	0.31	0.072	Williamsburg	65	100	0.22	0.067
Malden	45	105	0.29	0.069	Williamstown	65	90	0.23	0.069
Manchester	45	110	0.32	0.072	Wilmington	55	105	0.31	0.073
Mansfield	55	110	0.25	0.063	Winchendon	65	100	0.26	0.071
Marblehead	45	110	0.31	0.071	Winchester	55	105	0.29	0.070
Marion	45	110	0.22	0.057	Windsor	65	90	0.22	0.067
Marlborough	55	100	0.26	0.068	Winthrop	45	105	0.29	0.068
Marshfield	45	110	0.26	0.064	Woburn	55	105	0.30	0.071
Mashpee	35	120	0.20	0.054	Worcester	55	100	0.24	0.067
Mattapoisett	45	110	0.22	0.057	Worthington	65	100	0.22	0.067
Maynard	55	100	0.27	0.069	Wrentham	55	100	0.24	0.064
Medfield	55	100	0.25	0.065	Yarmouth	35	120	0.19	0.052

1605.3.1 Replace Equation 16-13 as follows:

$$2/3[1.2D + (1.6W \text{ or } 1.0E) + f_1L + 0.5(L_r \text{ or } S \text{ or } R) + 1.6H] \text{ where } f_1 \text{ is defined in section 1605.2.1}$$

1605.3.2 Delete.**Table 1607.1 Item 5.** Revise to read as follows:Balconies (exterior and interior) and decks^h**Table 1607.1 Item 30.** Revise 'Classroom' uniform loading as follows: 50 psf**1607.5** Add a last sentence as follows:

Partition loads are non-reducible live load.

1607.9.1.6 Add section:**1607.9.1.6 Hangers.** Live load shall not be reduced for hangers.

16.00: continued

1607.9.1.7 Add subsection:

1607.9.1.7 Concrete Flat Slabs, Grid Slabs, and Plates. Live load shall not be reduced for peripheral (two-way action) shear around columns, capitals, and drop panels of concrete flat slabs, flat plates, and grid (waffle) slabs.

1607.9.2 Delete.

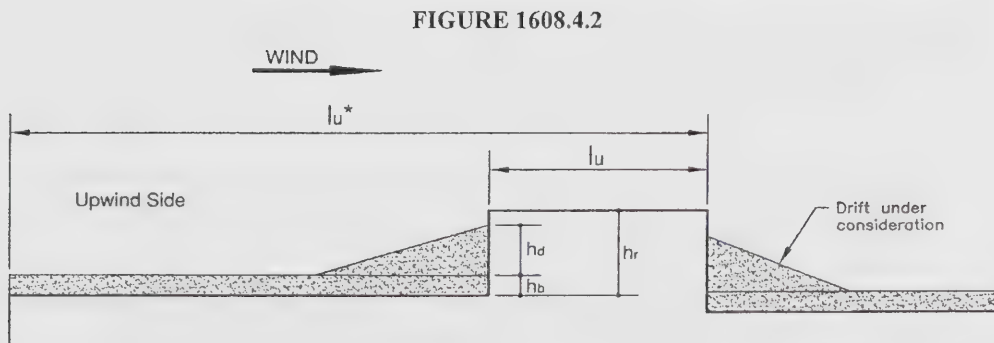
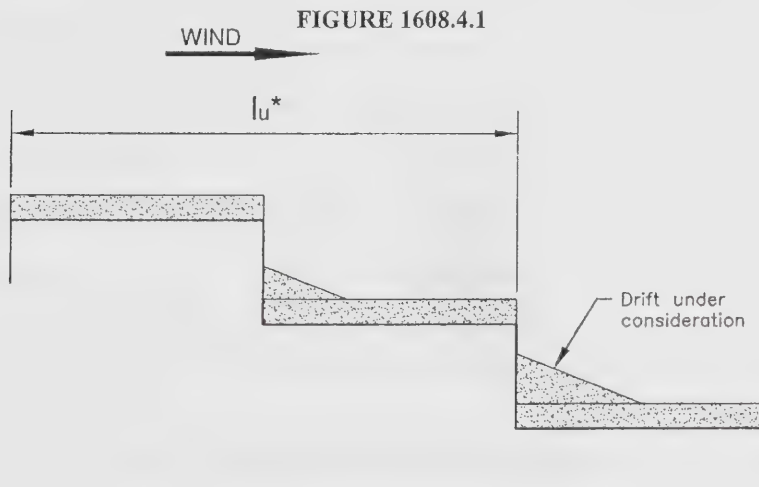
1608.2 Replace as follows:

1608.2 Ground Snow Loads. The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with Table 1604.11.

1608.3 to 1608.11 Add subsections:

1608.3 Concave Curved Roofs. Section 7.4.3 of ASCE 7 applies to convex curved roofs only. The effective loaded area of a concave curved roof shall be that area of the surface of the roof where the tangents to the surface have a slope of 50 degrees or less. The total uniform snow load for concave curved roofs shall be P_f multiplied by the total horizontal projected area of the roof. This total load shall be applied uniformly over the effective loaded area of the roof.

1608.4 Drifts on Multiple Level Roofs. For multiple stepped roofs similar to that shown in Figure 1608.4.1, the sum of all the roof lengths upwind above the drift under consideration, l_u^* , in Figure 1608.4.1, shall replace l_u in Figure 7-8 of ASCE 7. For multiple level roofs similar to that shown in Figure 1608.4.2, if the total calculated height of a drift and the underlying uniform snow layer on the upwind side of a higher roof ($h_d + h_b$) is equal to or greater than $0.7(h_b + h_r)$, then the length, l_u^* , as shown in Figure 1608.4.2, shall be used in place of l_u in Figure 7-8 of ASCE 7.



16.00: continued

1608.5 Very High Roof Separations. When the ratio h_r/L_T is greater than 1.0, where L_T is the dimension in feet of the upper roof perpendicular to the wind flow (perpendicular to L_u in Figure 7-8 of ASCE 7) and $h_r = h_b + h_c$, the drift surcharge load on the lower roof due to drifting of snow from the upper roof may be reduced. The reduced height of the drift surcharge, h_{dr} , shall be not less than: $h_{dr} = h_r(2 - h_r/L_T)$, except that when h_r/L_T is greater than 2.0, h_{dr} shall be equal to zero.

1608.6 Snow Pockets or Wells. Account shall be taken of the load effects of potentially excessive snow accumulation in pockets or wells of roofs or decks.

1608.7 Roof Projections. The term roof projections used herein and in section 7.8 of ASCE 7 shall be interpreted to include screen walls, parapets, fire wall projections, and mechanical equipment. Drift loads at roof projections shall be in accordance with section 7.8 of ASCE 7.

1608.8 Sliding Snow. In addition to the sliding snow load on a lower roof as required in section 7.9 of ASCE 7, the lower roof shall be designed for a windward drift surcharge at the wall separating the upper and lower roofs in accordance with Figure 1608.4.1 and section 7.8 of ASCE 7. The sliding snow load and the windward drift surcharge need not be considered to act concurrently.

1608.9 Snow Guards. Sliding snow from an adjacent sloping high roof need not be considered on the low roof if snow guards, as specified herein, are provided on the high roof. In this case, the sloping roof with snow guards shall be designed for the unit snow loads required for a flat roof. The roof area(s) requiring snow guards shall be indicated on the construction documents. Snow guards shall be designed by a *registered design professional*. The *registered design professional* shall insure that there are adequate load paths from the snow guards into the supporting members and from the supporting members into the primary structure. The structural design of snow guards shall account for the impact of the sliding snow. The effectiveness in preventing the sliding of snow of proprietary snow guard systems shall be demonstrated by tests.

1608.10 Snow Storage and Collection Areas. Consideration of potentially excessive snow accumulation shall be given to portions of structures designated or used as snow collection or storage areas during and after snow removal operations (e.g. temporary snow collection areas when mechanically removing snow from a roof; snow storage areas for parking structures).

1609.1.1 Revise the second sentence to read as follows:

The type of opening protection required, and the exposure category for a site is permitted to be determined in accordance with section 1609 or ASCE 7. See section 1609.3 for the basic wind speed.

1609.3 Replace the first paragraph with the following:

The basic wind speed, V in mph, shall be determined in accordance with Table 1604.11.

1610 Replace section as follows:

SECTION 1610 LATERAL SOIL AND HYDROSTATIC LOADS

1610.1 General. Basement, foundation, and retaining walls shall be designed to resist lateral loads due to soil and water pressure. Lateral soil pressure on said walls shall be determined in accordance with the principles of soil mechanics and as provided in Chapter 18. Floors or similar elements below the water table shall be designed to resist the upward pressure of the water.

Exception. Uninhabitable spaces with concrete floors on the ground with an under-slab drainage system, including sump pits and sump pumps, designed to keep the water level a minimum of 1 foot below the bottom of the floor slab need not be designed to resist water pressure.

1610.2 Seismic Loads on Foundation Walls and Retaining Walls. Exterior foundation walls and retaining walls shall be designed to resist an earthquake force, F_w , for horizontal backfill surface, equal to:

$$F_w = 0.100(S_s)(F_a)(\gamma)(H)^2$$

16.00: continued

where S_s is the maximum considered earthquake spectral response acceleration from Table 1604.11, F_a is the site coefficient from Table 1613.5.3(1), γ_t is the total unit weight of the soil, and H is the height of the wall measured as the difference in elevation of finished ground surface or floor in front of and behind the wall. The earthquake force from the backfill shall be distributed as an inverted triangle over the height of the wall.

Surcharges that are applied over extended periods of time shall be included in the total static lateral soil pressure and their earthquake lateral force shall be computed and added to the force determined above. The point of application of the earthquake force from extended duration surcharge shall be determined on an individual case basis.

If the backfill or the existing soil behind the backfill consists of loose saturated granular soil, the potential for liquefaction of the backfill or existing soil adjacent to the wall during seismic loading shall be evaluated in accordance with the requirements of section 1806.4. If the backfill or existing soil beyond the backfill is potentially subject to liquefaction, the increase in design lateral load on the foundation wall or retaining wall shall be determined by a *registered design professional*.

For wall strength design, a load factor of 1.43 shall be applied to the earthquake force calculated above.

1612.1 At the end of the first sentence add this text: 'in accordance with this section and Appendix G.'

1612.2 Add or revise definitions as follows:

BASE FLOOD ELEVATION. The elevation of the *base flood*.

BASEMENT. Add after 'section 1612' the text 'and Appendix G'

COASTAL WETLAND RESOURCE AREA. Any coastal wetland resource are a subject to protection under the Wetlands Protection Act, M.G.L. c. 131, § 40, and the Wetlands Protection Act regulations, 310 CMR 10.21 through 10.35. Coastal Wetland Resource Areas include barrier beaches, coastal beaches, coastal dunes, rocky intertidal shores, tidal flats, land subject to 100 year coastal storm flowage, coastal banks, land containing shellfish, lands subject to tidal action, and lands under an estuary, salt pond or certain streams, ponds, rivers, lakes or creeks within the coastal zone that are anadromous/catadromous fish runs.

DESIGN FLOOD. *See base flood.*

DESIGN FLOOD ELEVATION. *See base flood elevation.*

FLOOD HAZARD AREA. The greater of the flowing two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year
2. The area designated as a *flood hazard area* on a community's flood hazard map, such as a Flood Hazard Boundary Map or Flood Insurance Rate Map, or otherwise legally designated.

Note. A *flood hazard area* subject to high-velocity wave action is also considered a *flood hazard area*.

1612.3 Replace text with 'See section 1612.2 for *flood hazard areas*'.

1612.3.1 Replace '*design flood*' with '*base flood*'.

1612.3.2 Delete subsection.

1612.4 Add last sentence and Note as follows:

Plans shall be prepared by a *registered design professional*.

Note. In using ASCE 24, delete Tables 1-1, 2-1, 4-1, 5-1, 6-1 and 7-1. For elevation requirements use section 1612 and Chapter 115 Appendix G. Also, delete references to Coastal A zones and instead use requirements for A zones in section 1612 and Appendix G.

16.00: continued

1612.5 At the end of this section add items 3. and 4. as follows:

Notes:

3. For construction in a *coastal wetland resource area*:

3.1 For buildings or structures, including new or replacement manufactured homes, lateral additions, foundations that are replaced in total, replaced so as to constitute new construction or substantially repaired or improved of a building or structure that has incurred substantial damage as a result of flooding and/or storms, proposed on a parcel of land that is located wholly or partially within a *coastal wetland resource area* shown on the map entitled "Map of Coastal Wetland Resources For Building Officials", the *building official* shall require submission of one of the construction documents specified in (a) through (d) along with a notarized statement by the applicant that the Order, Determination or Notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building permit shall be issued unless and until a construction document that conforms to the requirements this section is submitted.

(a) An Order of Conditions establishing the boundaries of all *coastal wetland resource areas* in a plan referenced in and accompanying the Order. The Order shall determine whether the *coastal wetland resource areas* are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including the interests of flood control and storm damage prevention. If the Order indicates that the proposed construction work is located within a *coastal dune* that is significant to the interests of flood control and/or storm damage prevention, the Order of Conditions must allow the proposed construction.

(b) An Order of Resource Area Delineation stating that the proposed construction work is outside the boundaries of all *coastal wetland resource areas* as shown on a plan referenced in and accompanying the Order.

(c) A Determination of Applicability stating that the proposed construction work is outside the boundaries of all *coastal wetland resource areas* as shown on a plan referenced in and accompanying the Determination or will not fill, dredge or alter a *coastal wetland resource area*.

(d) A Notice of Non-significance evidencing that the proposed construction work is within a *coastal wetland resource area* as shown on a plan referenced in and accompanying the Notice and stating that the *coastal wetland resource area* is not significant to any of the interests identified in the Wetlands Protection Act.

3.2 The elevation of the bottom of the lowest horizontal structural member, as required by the lowest floor elevation inspection in section 110.3.3

4. Documentation for buildings located in more than one zone shall meet the requirements of all zones.

1613.1 Replace the first paragraph with the following:

Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A, but including Massachusetts Amendments to Tables 12.2-1 and 12.14-1.

16.00: continued

Note. Seismic design category A shall not be used in Massachusetts. Any structure that could satisfy the requirements of seismic design category A in section 1613 or ASCE 7 shall be assigned to seismic design category B for purposes of implementing this Code.

1613.1 Add, after the exceptions, this text:

Section 1613 presents criteria for the design and construction of buildings and nonbuilding structures subject to earthquake ground motion. The specified earthquake loads rely on post-elastic energy dissipation in the structure, and because of this fact, the provisions for design, detailing and construction shall be satisfied even for structures and members for which load combinations containing earthquake load produce lesser effects than other load combinations.

The purpose of section 1613 is to minimize the hazard to life of occupants of all buildings and nonbuilding structures, to increase the expected performance of high occupancy assembly and education buildings as compared to ordinary buildings, and to improve the capability of essential facilities to function during and after an earthquake. Because of the complexity of and the great number of variables involved in seismic design (e.g. variability in ground motion, soil types, dynamic characteristics of the structure, material strength properties, and construction practice), section 1613 presents only minimum criteria in general terms. These minimum criteria are considered to be prudent and economically justified for the protection of life safety in buildings subject to earthquakes and for improved capability of essential facilities to function immediately following an earthquake.

Absolute safety and prevention of damage, even in an earthquake event with a reasonable probability of occurrence, cannot be achieved economically in most buildings. The "design earthquake" ground motion specified in section 1613 may result in both structural and non-structural damage. For most buildings designed and constructed according to the minimum requirements of section 1613, it is expected that structural damage from a major earthquake may be repairable, but the repair may not be economically feasible. For ground motions larger than the design earthquake, the intent of section 1613 is that there will be a low likelihood of building collapse.

1613.5.1 Replace as follows:

1613.5.1 Mapped Acceleration Parameters. The parameters S_s and S_1 shall be determined from Table 1604.11.

Note to reader: The following amendments pertain to ASCE 7

ASCE 7, TABLE 12.2-1 Revise as follows:

Note f. Replace 'ordinary moment frame' with 'ordinary steel moment frame'

Limitations: Amend as follows:

Seismic Force-Resisting System	Seismic Design Category
A.3	B is NP
A.4	B is NP
A.9	B and C are NP
A.10	B is NP.
A.11	B is NP
A.14	B and C are limited to 35 ft. and note 1.
B.4	B and C are NP for K-type configuration only.
B.7	B is NP
B.8	B is NP
B.19	B and C are NP
B.20	B is NP
B.21	B is NP
B.24	B and C are limited to 35 ft. and note 1.
C.7	B is NP
E.3	B and C are NP
F	B is NP
H	B and C are limited to 100 ft. and 65 ft., respectively and note 2

16.00: continued

Note 1. Permitted only at exterior walls and fire-rated walls and not permitted for buildings in Occupancy Category IV and not permitted for buildings where the dead load of any laterally supported floor or roof exceeds 25 psf.

Note 2. Connections shall be designed for two times the computed forces and moments resulting from seismic loads, in combination with other loads, as applicable, but need not be designed for forces greater than the expected nominal yield strength ($R_y F_y A_g$) of diagonal braces in braced frames or 1.1 times the expected flexural capacity of beams ($1.1 R_y M_p$) in moment frames. Columns that are part of the seismic force-resisting system shall satisfy the requirements of section 8.3 Column Strength of ANSI/AISC 341 Seismic Provisions for Structural Steel Buildings. K-Braced Frames shall not be permitted. Beams in V-Type and Inverted V-Type Braced Frames shall meet the following additional requirements:

- a. A beam that is intersected by braces shall be continuous between columns.
- b. A beam that is intersected by braces shall be designed to support the effects of all tributary dead and live loads from load combinations stipulated by the Building Code, assuming that braces are not present.
- c. Top and bottom flanges of the beam at the point of intersection of braces shall be designed to support a horizontal force perpendicular to the longitudinal axis of the beam that is equal to 2% of the nominal beam flange strength: $F_y b_f t_{bf}$

ASCE 7, TABLE 12.14-1 Revise as follows:

Limitations: Amend as follows:

Seismic Force-Resisting System	Seismic Design Category
A.3	B is NP
A.4	B is NP
A.9	B is NP
A.10	B is NP.
A.11	B is NP
A.14	See note 1.
B.4	B and C are NP for K-type configuration only.
B.7	B is NP
B.8	B is NP
B.19	B is NP
B.20	B is NP
B.21	B is NP
B.24	See note 1.

Note 1. Permitted only at exterior walls and fire-rated walls and not permitted for buildings in Occupancy Category IV and not permitted for buildings where the dead load of any laterally supported floor or roof exceeds 25 psf.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 17: STRUCTURAL TESTS AND SPECIAL INSTRUCTIONS

1701.1.1 Add subsection:

1701.1.1 Construction Control. The owner shall provide for a *registered design professional* in *responsible charge* of controlled construction who shall:

1. unless directed otherwise by the *building official*, assume all responsibilities of the *building official* contained in sections 1703.1, 1703.2, 1703.4, 1703.4.1, 1703.4.2, 1703.6, 1704.1, 1704.4.1, 1708.4, 1711.1, 1712.1.
2. be responsible for selection of any *approved agency*, *approved fabricator*, or party qualified to conduct a *special inspection*.
3. determine the frequency and extent of the applicable tests, inspections, and observations required in this chapter.
4. provide to the *building official*, prior to the issuance of a building permit, a plan that shall outline the tests, inspections, and observations of the work to such an extent that it provides reasonable evidence and documentation to the *building official* that the work is being constructed in accordance with the *construction documents*.
5. submit to the *building official*, prior to the issuance of a certificate of occupancy, a final tests and inspections report stating that to his knowledge, the requirements of the plan in section 1701.1.1 item 4. have been satisfactorily completed and that any deficiencies have been reported and rectified.

1701.1.2 Add subsection:

1701.1.2 Responsibilities of the Contractor. The contractor shall provide to the *registered design professional* and *building official* a quality control program for the construction regulated by this chapter. The contractor shall comply with this program, except as specifically allowed by the *registered design professional*, and shall be responsible for construction quality control, compliance with the *approved construction documents*, and for any design for which it is responsible.

1701.1.3 Add subsection:

1701.1.3 Waiver of Structural Inspection by the Registered Design Professional. Where, in the opinion of the *registered design professional*, any portion of the contractor's quality control program meets the inspection and test requirements of this chapter, the *registered design professional* may reduce the extent of *special inspections* and tests contained in section 1701.1.1 item 4. following approval by the *building official*. When this is done, the final tests and inspections report, 1701.1.1 item 5., shall include reference to the results of those inspections and tests performed by the contractor. Immediately upon receipt, the contractor shall submit reports of the affected inspections and tests to the *registered design professional*.

1704.2.2 Add this exception:

Exception. Special inspections required by section 1704 are not required where the work is done on the premises of the following certified fabricators:

1. A fabricator of structural steel that is certified by the American Institute of Steel Construction Inc.'s Fabricator Certification Program.
2. A fabricator of precast concrete that is certified by the Precast/Prestressed Concrete Institute's Plant Certification Program.
3. A fabricator of cold-formed steel trusses that is certified by the Truss Plate Institute's Quality Assurance Program.
4. A fabricator of wood trusses that is certified by the Truss Plate Institute's Quality Assurance Program.

Such fabricators shall not be exempt from special inspections required by sections 1704.3, 1704.4 or 1704.6. At the completion of fabrication, the certified fabricator shall submit a certificate of compliance to the *registered design profession* stating that the work was performed in accordance with the *approved construction documents*.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 18: SOILS AND FOUNDATIONS****1801.3** Add subsection:

1801.3 Foundation Types Not Covered by the Code. Types of foundations not specifically covered by the provisions of this chapter, and ground modification treatments to improve soils with inadequate load bearing capacity or settlement characteristics, may be permitted subject to approval by the *building official*. A report shall be submitted to the *building official* that identifies the foundation as a type not covered by existing code provisions, and contains sufficient data and analyses to substantiate the adequacy of the proposed foundation. The report shall be prepared by a *registered design professional* knowledgeable in the design of the proposed type of foundation or ground modification. The *building official* may require that an independent peer review be performed to evaluate the adequacy of the proposed design.

1803.1 Replace second sentence with the following:

Where required, such investigations shall be conducted by a *registered design professional*.

1803.2 Replace the exception with three exceptions as follows:

Exceptions: The *building official* shall be permitted to waive the requirement for a geotechnical investigation:

1. Where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary to meet the requirements of this chapter or,
2. For unoccupied structures that do not pose a significant risk to public safety in the event of failure; or
3. For structures used for agricultural purposes.

1803.5.4 Delete the Exception**1803.5.11** In two locations replace 'C' with 'B, C'**1803.5.12** In two locations replace 'D' with 'B, C, D'**1803.6** Add item 11. as follows:

11. Magnitude and distribution of lateral soil and ground water pressures, including seismic loads, on foundation and retaining walls.

1804.4 Delete item 4. and replace items 2. and 3 as follows:

2. Unless such fill is placed to avoid diversion of water and waves toward any building or structure
3. Fill in these areas may also require approval by the Conservation Commission and/or the Department of Environmental Protection in accordance with 310 CMR 10.00: *Wetlands Protection*.

1805.4.2 Add exception:

Exception. The foundation drain may be omitted if determined not to be necessary by a *registered design professional*.

1805.5 Add subsection:

1805.5 Impacts on Groundwater Levels. Below-grade structures, their appurtenances and foundation drains shall be designed and constructed so as not to cause changes to the temporary or permanent groundwater level if such changes could adversely impact nearby structures or facilities including deterioration of timber piles, settlement, flooding or other impacts.

1806.2 Replace in this section the text 'Table 1806.2' with 'Table 1806.2 or Table 1806.2a'

18.00: continued

1806.2 Insert TABLE 1806.2a and Notes 1. through 9.

TABLE 1806.2a PRESUMPTIVE ALLOWABLE VERTICAL BEARING PRESSURES

Material Class	Description	Notes	Consistency in Place	Net Bearing Pressure (tons/ft ²) ^{1,2,3}
1a	Massive bedrock: Granite, diorite, gabbro, basalt, gneiss	4	Hard, sound rock, minor jointing	100
1b	Quartzite, well cemented conglomerate	4	Hard, sound rock moderate jointing	60
2	Foliated bedrock: slate, schist	4	Medium hard rock, minor jointing	40
3	Sedimentary bedrock: cementation shale, siltstone, sandstone, limestone, dolomite, conglomerate	4	Soft rock, moderate jointing	20
4	Weakly cemented sedimentary bedrock: compaction shale or other similar rock in sound condition	4	Very soft rock	10
5	Weathered bedrock: any of the above except shale.	5	Very soft rock, weathered and/or major jointing and fracturing	8
6	Slightly cemented sand and/or gravel, glacial till (basal or lodgement), hardpan	6	Very dense	10
7	Gravel, widely graded sand and gravel; and granular ablation till	6	Very dense	8
			Dense	6
			Medium dense	4
			Loose	2
			Very loose	Note 9
8	Sands and non-plastic silty sands with little or no gravel (except for Class 9 materials)	6, 7	Dense	4
			Medium dense	3
			Loose	1
			Very loose	Note 9
9	Fine sand, silty fine sand, and non-plastic inorganic silt	6, 7	Dense	3
			Medium dense	2
			Loose	1
			Very loose	Note 9
10	Inorganic sandy or silty clay, clayey sand, clayey silt, clay, or varved clay; low to high plasticity	8	Hard	4
			Stiff	2
			Medium	1
			Soft	Note 9
11	Organic soils: peat, organic silt, organic clay	8,9		Note 9

Notes:

1. Net bearing pressure shall consist of the bearing pressure applied at the bottom of the foundation, including the weight of the foundation and any soil immediately overlying the foundation, minus the pressure calculated for a height of soil extending from the bottom of the foundation to the lowest ground surface level immediately adjacent to the foundation.
2. Where the load-bearing layer directly below the foundation is underlain by a weaker layer, the bearing pressure on the weaker layer shall be checked by assuming that the load is spread uniformly at an angle of 30 degrees with the vertical, or by using another suitable method to determine the bearing pressure on the weaker layer.
3. The bearing strata shall be adequately protected against disturbance. If the bearing materials are disturbed from any cause, for example, by flow of water, freezing or construction activities, the extent of the disturbance shall be evaluated by a registered design professional to determine appropriate remedial measures or reduced allowable bearing pressures.
4. The allowable bearing pressures may be increased by an amount equal to 10% for each foot of depth below the surface of sound rock; however, the increase shall not exceed two times the value given in the table.

18.00: continued

5. Weathered shale and/or weathered compaction shale shall be included in Material Class 10. Other highly weathered rocks and/or residual soils shall be treated as soil under the appropriate description in Material Classes 6 to 10. Where the transition between residual soil and bedrock is gradual, a registered design professional shall make a judgment as to the appropriate bearing pressure.

6. Allowable bearing pressures may be increased by an amount equal to 5% for each foot of depth of the bearing area below the minimum required in section 1806.0; however, the bearing pressure shall not exceed two times the value given in the table. For foundation bearing areas having a least lateral dimension smaller than three feet, the allowable bearing pressure shall be $\frac{1}{3}$ of the tabulated value times the least dimension in feet.

7. Evaluate susceptibility to liquefaction in accordance with section 1806.4.

8. Evaluate long-term settlement due to consolidation for these materials.

9. A *registered design professional* shall be engaged to provide recommendations for these special cases.

1806.3, 1806.3.1, 1806.3.2, and 1806.3.3 Replace these subsections in their entirety with this section as follows:

1806.3 Lateral Load. Where foundations are required to resist lateral loads, the allowable values of sliding friction, adhesion and passive pressure for design shall be determined by a *registered design professional*.

1806.3.4 Add, at the end of the paragraph, this text: 'of Table 1806.2'

1806.4 Add subsection:

1806.4 Liquefaction. The potential for liquefaction induced by the design earthquake in saturated clean to silty sands and non-plastic silts (Soil Classes 8 and 9 in Table 1806.2a) shall be evaluated as indicated in sections 1806.4.1 through 1806.4.4.

1806.4.1 Standard Penetration Test. For cases where lateral sliding cannot occur, the susceptibility to liquefaction can be evaluated on the basis of Standard Penetration Test (SPT) blow counts, N (blows per foot), using Figures 1806.4(a) through (c). Figure 1806.4(a) shall be used if the N -values were determined using the standard 140-pound donut drop weight, or if the type of hammer is not known. Figures 1806.4(b) and (c) shall be used only for cases where the specific type of hammer (safety hammer or automatic hammer) is known to have been used. Figures 1806.4(b) and (c) reflect the greater energy efficiency with these two specific types of hammer. Hammer type shall be as described in ASTM Standard Method D6066. N -values to be used with Figures 1806.4(a) through (c) are uncorrected field values.

Figures 1806.4(a) through (c) are intended to be a screening tool for Site Classes A through D, determined in accordance with section 1613.5.2. The figures are based on a rock spectral acceleration of $SS = 0.35g$, a soil amplification factor of $F_a = 1.52$ for Site Class D, and a factor of safety of 1.1. These figures are based on observed behavior of clean fine to medium sand, and are conservative for other (more silty) materials in Soil Classes 8 and 9.

If the SPT N -values plot above or to the right of the applicable curve in Figures 1806.4(a) through (c), the soil shall be considered not susceptible to liquefaction. Liquefaction for soils below a depth of 60 feet (18 meters) from final grade need not be considered for level ground. For pressure-injected footings, the ten-foot (3-meter) thickness of soil immediately below the bottom of the driven shaft shall be considered not susceptible to liquefaction.

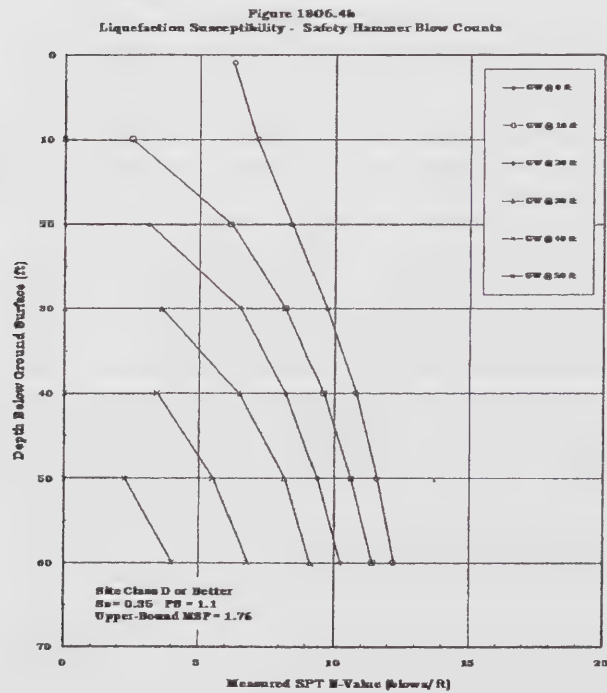
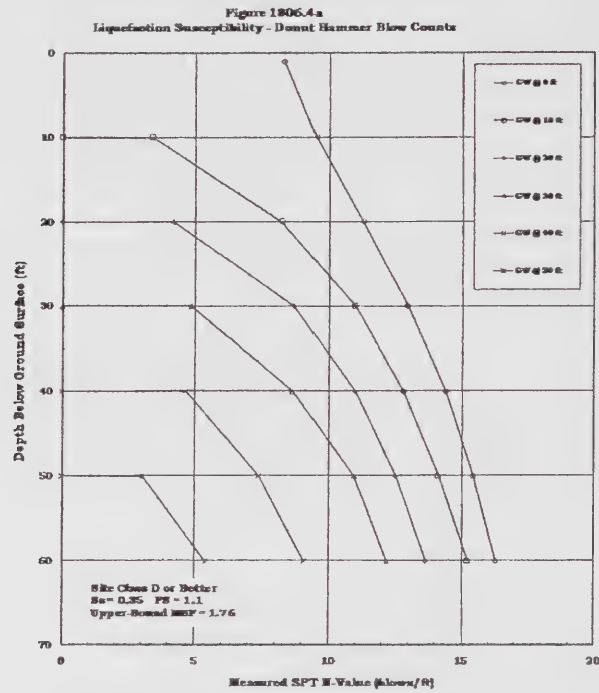
1806.4.2 Compacted Fills. Compacted granular fills shall be considered not susceptible to liquefaction provided that they are systematically compacted to at least 93% of the maximum dry density determined in accordance with ASTM Standard Method D1557.

1806.4.3 Evaluation by a Registered Design Professional. Soils that do not meet the criteria in section 1806.4.1 or 1806.4.2 shall be considered potentially susceptible to liquefaction. For these cases, studies shall be performed by a *registered design professional* in accordance with section 1803.5.12.

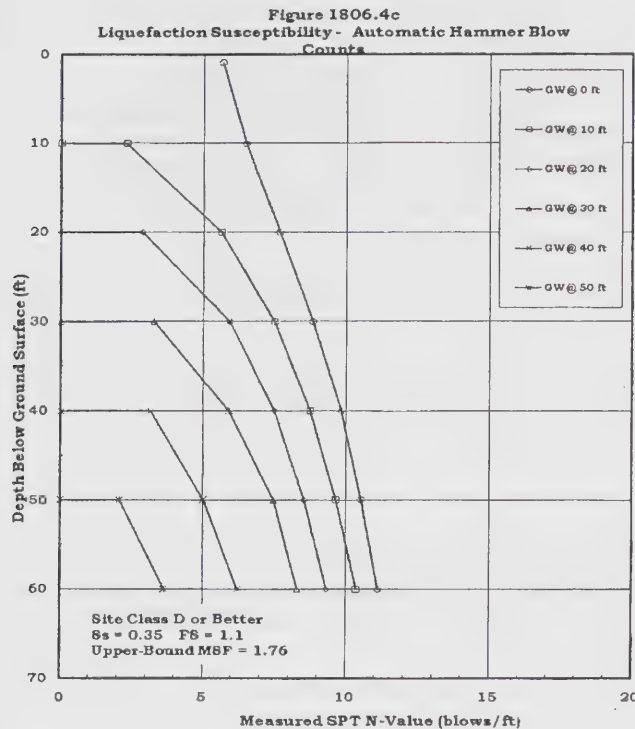
1806.4.4 Lateral Sliding. For sites underlain by the saturated soils identified in section 1806.4, and where the ground surface at the site or adjacent to the site is sloping such that lateral sliding (slope instability) may occur, studies by a *registered design professional* shall be made to establish the safety against sliding and lateral deformations as a result of the design earthquake.

18.00: continued

1806.4 Insert Figures 1804.a through c.



18.00: continued



1807.1.6 Replace as follows:

1807.1.6 Prescriptive Design of Concrete and Masonry Foundation Walls. Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with this section, provided that they are laterally supported at the top and bottom, not subject to net hydrostatic pressures or surcharge loadings, and the backfill adjacent to the walls is not subjected to heavy compaction loads.

1807.2 Replace as follows:

1807.2 Retaining Walls. Retaining walls shall be designed in accordance with sections 1807.2.1 through 1807.2.6. The requirements of this section shall apply to any type of retaining structure or system that has any portion of its exposed face inclined steeper than one horizontal to one vertical, including conventional retaining walls, crib and bin wall systems, reinforced or mechanically stabilized earth systems, anchored walls, soil nail walls, multi-tiered systems, boulder walls or other types of retaining structures. The requirements of this section do not apply to slope facings, armor or riprap placed for the sole purpose of protection against surface erosion.

1807.2.1 Design. Retaining walls shall be designed to resist the static and seismic pressures of the retained materials, water pressures, and dead and live load surcharges to which such walls are subjected, and to ensure stability against excessive movements, overturning, sliding, excessive foundation pressure, and water uplift. Retaining walls that support an unbalanced height of retained material greater than six feet (1.83 m), and any retaining system or slope that could impact public safety or the stability of an adjacent structure shall be designed by a *registered design professional*.

1807.2.2 Design Lateral Soil Loads. Retaining walls shall be designed for the lateral soil loads set forth in section 1610, including seismic lateral pressure, or the lateral loads determined by a *registered design professional* based on a geotechnical investigation performed in accordance with section 1803.

18.00: continued

1807.2.3 Safety Factor. Retaining walls shall be designed to resist the lateral action of soil to produce sliding and overturning with a minimum factor of safety of 1.5 in each case. The load combinations of section 1605 shall not apply to this requirement. Instead, design shall be based on 0.7 times nominal earthquake loads, 1.0 times other nominal loads, and investigation with one or more of the variable loads set to zero. The safety factor against lateral sliding shall be taken as the available soil resistance at the base of the retaining wall foundation divided by the net lateral force applied to the retaining wall.

Exception. : Where earthquake loads are included, the minimum factor of safety for retaining wall sliding and overturning shall be 1.1.

1807.2.4 Overall Stability. The overall global stability of a retaining wall, considering potential failure surfaces extending through the materials located below, in front of and behind the wall shall be evaluated.

1807.2.5 Discrete Elements. For retaining walls constructed of discrete elements, such as unmortared masonry, rock, boulders, or stacked modular units, the elements shall be bonded or fastened together to prevent dislodgement under static and seismic loading conditions where dislodgement of the elements could pose a risk to public safety.

1807.2.6 Wall Drainage. Retaining walls shall be designed to support a hydrostatic head of water pressure equal to the full height of the wall, unless a drainage system is provided to reduce or eliminate hydrostatic pressure on the wall. Drainage systems shall be designed with sufficient permeability and discharge capacity, and shall be provided with appropriate filters and other design features to prevent blockage due to siltation, clogging, or freezing.

1808.2 Replace the first sentence with the following:

Foundations shall be designed to provide adequate load bearing capacity while limiting settlement, heave and lateral movement to tolerable levels.

1810.1.2 Replace as follows:

1810.1.2 Use of Existing Deep Foundation Elements. Deep foundation elements left in place that have previously supported a partially or fully demolished structure may be used for support of new construction if satisfactory evidence is submitted by a *registered design professional* to the *building official* which indicates that the foundation elements have not been adversely impacted by the demolition, are structurally sound, have adequate load-bearing capacity to support the new design loads, and meet all of the requirements of this code. The load-bearing capacities of the deep foundation elements shall be determined by one of the following methods:

1. Analyses to determine the actual sustained load that the foundations supported satisfactorily in the previous structure.
2. Analyses based on documented foundation geometry and presumptive bearing value of the supporting soil, where applicable to the foundation type.
3. Load testing or re-driving performed on representative foundation elements. Records of previous pile-driving and load testing may be utilized where such records are deemed adequate by the *registered design professional*.

1810.3.2.6 Insert the following exceptions:

Exceptions:

1. Maximum allowable stress for concrete or grout in compression for elements that are cast in place without a permanent casing shall be 0.33 f'c.
2. Maximum allowable stress for concrete or grout in compression for all elements shall be limited to 1,600 psi.
3. Maximum allowable stresses for timber foundation elements shall be 80 percent of the values determined in accordance with the AF&PA NDS.

18.00: continued

1810.3.3.1 At the end of this section add the text as follows:

Where the allowable load capacity is not determined by using one of the formulas or analysis methods provided in sections 1810.3.3.1.1 through 1810.3.3.1.11, or the presumptive load-bearing values in section 1806, the allowable load capacity shall be verified by load tests. Dynamic load testing of instrumented driven piles performed in accordance with ASTM D4945 may be accepted by the *building official* in lieu of static load testing, where the testing program consists of a minimum of three instrumented piles tested to a minimum factor of safety of 2.5 using an analysis procedure that matches the force and velocity traces measured at the top of the pile. Load testing may be waived by the *building official* based upon submittal of substantiating data prepared by a *registered design professional* which include load test data or performance records for the proposed deep foundation elements under similar soil and loading conditions.

Exception. The allowable frictional resistance of cast-in-place elements greater than or equal to 12 inches in diameter obtaining capacity in Material Classes 1 through 6 in Table 1806.2a may be determined by a *registered design professional* based on analyses incorporating results of testing in similar bearing materials.

1810.3.3.1.1 Replace as follows:

1810.3.3.1.1 Driving Criteria. For driven piles with a design load capacity not exceeding 50 tons (445 kN), the allowable load capacity may be determined based on final driving criteria (net displacement per hammer blow) obtained from an appropriate pile driving formula using a factor of safety not less than 3.5, or from wave equation analysis using a factor of safety not less than 2.75. The use of followers shall be allowed only as directed by a *registered design professional*. The introduction of fresh hammer cushion material just prior to final penetration is not permitted.

1810.3.3.1.2 Replace as follows:

1810.3.3.1.2 Load Tests. Where static load testing is required to determine the allowable load bearing capacity of deep foundation elements in vertical compression, the load tests shall be performed in accordance with ASTM D1143 and the following requirements:

1. **Load in Bearing Stratum.** The load reaching the top of the bearing stratum under the maximum test load shall not be less than the following:

- a. For end-bearing elements: 100% of the allowable design load.
- b. For friction elements: 150% of the allowable design load.

For foundation elements designed for a combination of end-bearing and friction, the required test load reaching the bearing stratum shall be based on the predominant support mode.

2. **Instrumentation.** The test element shall be instrumented in accordance with the requirements in paragraph 4.4.1 of ASTM D1143 to enable measurement or computation of the load in the element where it enters the bearing stratum. For foundation elements containing concrete, instrumentation shall be installed to permit direct measurement of the elastic modulus of the element during the test. Instrumentation of the test element is not required for the following cases:

- a. The test element is installed within a casing that extends to within ten feet above the bearing stratum.
- b. Load testing is performed on an existing foundation element, and appropriate consideration is given to potential frictional resistance developed above the bearing stratum during the load test.
- c. The foundation element length does not exceed 30 feet and no appreciable load will be supported above the bearing stratum.

3. **Loading procedure.** The loading procedure shall be as follows:

- a. Apply 25% of the proposed allowable design load every 0.5 hour. Longer time increments may be used, but each time increment should be the same. In no case shall a load be changed if the rate of settlement is not decreasing with time.
- b. At 200% of the proposed allowable design load maintain the load for a minimum of one hour and until the settlement (measured at the lowest point on the element at which measurements are made) over a one-hour period is not greater than 0.01 in.
- c. Remove 50% of the design load every 15 minutes until zero load is reached. Longer time increments may be used, but each should be the same.

18.00: continued

- d. Measure rebound at zero load for a minimum of one hour.
- e. For each load increment or decrement, take readings at the top of the element and on the instrumentation at one, two, four, eight and 15 minutes and at 15-minute intervals thereafter.

A load greater than 200% of the proposed allowable design load may be applied at the top of the test element, using the above loading procedure, to ensure that the requirement for minimum load reaching the bearing stratum is fulfilled. Other optional methods listed in ASTM D1143 may be approved by the *building official* upon submittal in advance of satisfactory justification prepared by a *registered design professional*.

1810.3.3.1.3 Replace as follows:

1810.3.3.1.3 Load Test Evaluation Methods. Provided that the requirement for minimum load reaching the bearing stratum is satisfied, the allowable design load is permitted to be the greater of the following:

1. Allowable design load based on settlement during loading: 50% of the applied test load which causes a gross settlement at the top equal to the sum of: a) the theoretical elastic compression of the element in inches assuming all the load at the top is transmitted to the tip, plus b) 0.15 inch (3.8 mm), plus c) 1% of the tip diameter or width in inches.
2. Allowable design load based on the net settlement after rebound: 50% of the applied test load which results in a net settlement at the top of 0.5 inch (13 mm) after rebound at zero load.

If the allowable design load is not governed by one of the above criteria, the allowable design load shall be equal to 50% of the maximum test load.

If the requirement for minimum test load reaching the bearing stratum is not satisfied, the allowable design load shall not exceed: a) the load reaching the bearing stratum for end-bearing elements and b) two-thirds of the load reaching the bearing stratum for friction elements.

The allowable design load capacity determined from load tests can be applied to other foundation elements of the same type and size that are installed in similar subsurface conditions using the same installation methods and equipment. Where the design is based on a minimum embedment length, minimum penetration resistance, or friction over a minimum surface area, the applicable design value for the production elements shall equal or exceed the value used for the test element.

1810.3.3.1.10 Add subsection:

1810.3.3.1.10. Enlarged Base Piles. For enlarged base piles with compacted concrete bases and design capacities up to 120 tons, that are formed on or in bearing materials of Classes 1 to 9 inclusive in Table 1806.2a, the allowable load may be computed by the following formula. The Class 9 material (fine sand) shall have a maximum of 15% by weight finer than the No. 200 mesh sieve and the fines shall be non-plastic.

$$R = [(B \times E)/C] V^{2/3} \quad \text{(Equation 18-12)}$$

where:

R = allowable load in pounds.

B = average number of blows required to inject one cubic foot of concrete, during injection of the last batch.

E = Energy per blow in foot-pounds.

C = constant.

V = total volume of base concrete in cubic feet.

The values of R, E, and C shall conform to Table 1810.3.3.1 unless other values are determined by load test, in which case the latter values shall control. The value of V shall include an allowance of one Standard Batch Volume of concrete, if concrete is used in the tube during the driving process, plus the additional volume of concrete injected during formation of the base.

During injection of the last batch of concrete in the base, the height of concrete within the drive tube shall not be more than 1/3 of the drive-tube inside diameter.

18.00: continued

1810.3.3.1 Insert TABLE 1810.3.3.1**TABLE 1810.3.3.1**

R (tons)	Energy, E (foot-pounds)	C	Standard Batch Volume (cubic feet)
over 100	140,000	18	5
51 to 100	100,000	18	5
25 to 50	60,000	30	2

1810.3.3.1.11: Add subsection:

1810.3.3.1.11 Alternate Load Test Procedure for Micropiles. For micropiles designed as friction piles, the friction capacity in compression may be verified by load testing in tension in accordance with ASTM D3689 and the following requirements:

1. The test pile must be cased or left un-grouted down to the top of the bearing stratum in a manner which will ensure that no friction resistance is developed above the bearing stratum.
2. The maximum design load shall be taken as 50% of the applied test load which results in a movement under load of 0.5 inch (13 mm) at the pile tip. The movement at the pile tip shall be:
 - a. measured directly by a tell-tale or
 - b. computed by deducting the theoretical elastic elongation of the pile from the displacement measured at the top of the pile.

1810.3.9.4.1 Insert, after the first sentence of the second paragraph, the following text:

Where the actual cross-section area is greater than the minimum area required by design, the minimum reinforcement ratio can be applied to the minimum design area.

1810.3.9.4.2 Insert, after the first sentence of the second paragraph, the following text:

Where the actual cross-section area is greater than the minimum area required by design, the minimum reinforcement ratio can be applied to the minimum design area.

1810.3.9.5 Replace the first sentence with the following:

Where drilled shafts are belled at the bottom, the edge thickness of the bell shall not be less than four inches (102 mm).

1810.3.14 Add subsection:

1810.3.14 Spacing. The minimum center-to-center spacing of piles shall be not less than twice the average diameter of a round pile, nor less than $1\frac{3}{4}$ times the diagonal dimension of a rectangular pile. When driven to or penetrating into rock, the spacing shall be not less than 24 inches (610 mm). When receiving principal support from end-bearing on materials other than rock or through frictional resistance, pile spacing shall be not less than 30 inches (762 mm). For enlarged base piles, the center-to-center spacing with uncased shafts shall be not less than 2.5 times the outside diameter of the drive tube and not less than 42 inches (1067 mm). The center-to-center spacing of enlarged base piles with cased shafts shall be not less than 3.0 times the shaft diameter. For auger-cast piles, the minimum center-to-center spacing between adjacent piles shall not be less than 30 inches (760 mm) or two times the pile diameter, whichever is greater. The minimum center-to-center spacing between adjacent piers designed for friction support shall be not less than two times the shaft diameter.

18.00: continued

1810.4.6 Replace as follows:

1810.4.6 Heaved Elements. Deep foundation elements in the vicinity of piles being driven shall be monitored to observe heave of the elements. Accurate reference points shall be established on each element immediately after its installation; for cast-in-place piles with unfilled casings or shells, the reference point shall be at the bottom of the pile. If, following the installation of piles in the vicinity, heaving of ½ inch (13 mm) or more occurs, the heaved element shall be re-driven to develop the required capacity and penetration, or the capacity of the element shall be verified by load testing in accordance with section 1810.3.3.1.2 or by analyses performed by a *registered design professional*.

1810.4.8 Replace as follows:

1810.4.8 Hollow-stem Augered, Cast-in-place Elements. Where concrete or grout is placed by pumping through a hollow-stem auger, the element shall be formed by advancing a closed-end continuous-flight hollow-stem auger of uniform diameter into a satisfactory bearing material followed by removal of the tip closure and pumping cement grout or concrete through the hollow-stem while the hollow-stem auger is extracted. The installation shall conform to the following requirements:

1. During advancement, the hollow-stem auger shall be rotated at a higher rate than required for advancement, so that the material through which the auger is being advanced is removed by the auger flights and is not displaced laterally by the auger. During withdrawal, if the hollow stem auger is rotated, it shall be rotated in a positive (advancing) direction.
2. The grout or concrete shall be pumped under continuous pressure and in one continuous operation. Grout or concrete pump pressures shall be measured and maintained at all times sufficiently high to offset hydrostatic and lateral earth pressures. The rate of withdrawal of the auger shall be carefully controlled to exclude all foreign matter and ensure that the augered hole is completely filled with grout or concrete as the auger is withdrawn. The actual volume of grout or concrete pumped into each hole shall be equal to, or greater than, the theoretical volume of the augered hole.
3. If the grouting or concreting process of any element is interrupted, or a loss of concreting or grouting pressure occurs, the element shall be re-drilled to five feet (1524 mm) below the elevation of the tip of the auger when the installation was interrupted or concreting or grouting pressure was lost, or to the bottom of the element if less than five feet, and the installation shall resume from this point.
4. Elements shall not be installed within six diameters (center-to-center) of an element filled with grout or concrete less than 24-hours old except where approved by the *registered design professional*.
5. The continuous flight auger rig utilized to install augered uncased elements shall be equipped with data logging equipment that automatically monitors and produces a real-time printout of depth, grout or concrete pressure, grout or concrete flow, and rate of auger withdrawal. The automatic monitoring equipment shall immediately indicate to the equipment operator, and record on the printed record, any instance during the withdrawal of the hollow-stem auger where the rate of auger withdrawal times the theoretical element cross-sectional area exceeds the rate of grout or concrete placement. Printed instrumentation readout for each element shall be provided to the *registered design professional's* representative upon completion of each element.

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 19: CONCRETE

1905.6.2 Revise the exception as follows:

Exception. When the total volume of a given class of concrete is less than ten cubic yards, strength tests are not required when evidence of satisfactory strength is submitted to and approved by the *building official*.

1908.1.8 Replace as follows:

1908.1.8 Plain Concrete. Structural plain concrete members are not permitted to resist seismic forces, except as specified in this section.

1908.1.8.1 Isolated Footings. Isolated footings of plain concrete supporting pedestals or columns are permitted provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

1908.1.8.2 Wall Footings. Plain concrete footings supporting walls are permitted provided that the projection of the footing beyond the face of the wall does not exceed the footing thickness. Such footings shall be provided with not less than two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 5 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing.

1908.1.8.3 Pedestals. Plain concrete pedestals shall not be used to resist lateral seismic forces.

1908.1.8.4 Dowels. Reinforcing steel dowels shall extend from the plain concrete footings into the supported pedestals, columns, or walls.

NON-TEXT PAGE

CHAPTER 20: ALUMINUM

There are no amendments to Chapter 20.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 21: MASONRY****2101.2.7 through 2101.2.9** Add subsections:

2101.2.7 Lateral Load Resisting System. The lateral load resisting system shall include all masonry walls that are not structurally isolated from imposed in-plane loads other than from their own mass. All such walls shall be considered to be shear walls.

Exception. Elements not isolated from in-plane shear, such as narrow masonry walls and masonry wall piers between openings or between openings and the ends of the wall, which each have an in-plane stiffness less than 5% of the total stiffness of the lateral load resisting system in the same direction, may be omitted from the lateral load resisting system in that direction provided that the sum of the stiffnesses of the omitted elements is not greater than 10% of the total stiffness of the lateral load resisting system in that direction.

2101.2.8 Elements Omitted from Lateral Load Resisting System. Elements not isolated from in-plane forces, but not considered part of the lateral load resisting system as permitted in 2101.2.7, shall have sufficient strength and ductility to maintain vertical load carrying capacity when subjected to the design story drift.

2101.2.9 Walls Isolated from the Lateral Load Resisting System. Walls that are isolated from the lateral load resisting system are to be designed to resist applicable out-of-plane forces defined in Chapter 16, and to transfer the out-of-plane forces to the primary structure or to intersecting walls.

2106.2 Add subsection:

2106.2 Amendments to 1.17 of TMS 402/ACI 530/ASCE 5 (*Numbers that follow are section numbers of TMS 402/ACI 530/ASCE 5*).

1.17.3.2.5 Replace with:

- 1.17.3.2.5** Intermediate reinforced masonry shear walls shall comply with section 1.17.3.2.6 except:
- a. hooks are not required at the ends of reinforcing bars, and
 - b. section 1.17.3.2.6.1 is not applicable.

1.17.3.2.6 Add note (f) as follows:

- (f) All reinforcement shall be reinforcing steel bars in grouted cells, in grouted bond courses, or in grouted collar joints.

1.17.3.2.11 Revise note (a) to read as follows:

- (a) Reinforcement shall be provided in accordance with sections 1.17.3.2.6(a), (b), and (f), except where prestressing tendons are located.

1.17.4 At the end of this section add this text:

Notwithstanding the requirements of section 1.17.4 to the contrary, non-participating elements (*i.e.* those isolated from in-plane force) shall be reinforced in accordance with section 1.17.4.3, except as follows:

1. Reinforcement shall be provided in both the horizontal and vertical directions, and spacing of vertical bars shall not exceed 72 inches for Seismic Design Categories B and C, and 48 inches for Seismic Design Category D.
2. For exterior walls, and for walls enclosing exits, exit discharges, and elevator shafts, the minimum cross-sectional area of reinforcement in the direction of the span shall be 0.0007 times the gross cross-sectional area of the wall, and shall consist of reinforcing steel bars in grouted cells, grouted bond courses, or grouted collar joints. The maximum spacing of the bars shall be the lesser of $\frac{1}{3}$ of the span or 48 inches.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 22: STEEL

2205.1.1 Add subsection:

2205.1.1 Shop Drawings. Complete shop drawings shall be prepared in a manner consistent with industry practice *and* in advance of the actual fabrication. Such drawings shall clearly distinguish between shop and field connections for bolts and welds, and shall also clearly identify steel grades, bolt types and sizes, weld types and sizes, locations and dimensions and all information necessary for proper fabrication and installation of the steel members.

2210.6.1 Add subsection:

2210.6.1 Limitations on Cold-formed Steel Framed Shear Walls. The only sheathing materials permitted for cold-formed framed shear walls are steel sheets, wood structural panels, gypsum board panels, and fiberboard panels.

2210.6.2 Add subsection:

2210.6.2 Limitations on Gypsum Board Panel and Fiberboard Panel Sheathed Cold-formed Steel Framed Shear Walls. Gypsum board and fiberboard sheathed cold-formed steel framed shear walls are limited as follows:

1. The building shall not be more than 35 feet in height as measured from mean grade plane to mean roof plane.
2. The location of the shear walls shall be limited to *exterior walls, fire walls, fire barriers, or fire partitions*.
3. The building is not in Occupancy Category IV.
4. The dead load of each level (floor or roof), supported laterally by the shear walls, shall not be more than 25 psf. Where attics are not habitable, the dead load of a pitched roof shall include the dead load of the attic floor.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 23: WOOD****2302.1** Add a new definition as follows:

NATIVE LUMBER. Native lumber is wood processed in the Commonwealth of Massachusetts by a mill registered in accordance with 780 CMR 110.R4. Such wood may be ungraded but is stamped or certified in accordance with 780 CMR 110.R4.

2303.1.12 Add subsection:

2303.1.12 Native Lumber. *Native lumber* shall be acceptable for use in one- and two-family dwellings, barns, sheds, and agricultural and accessory structures. *Native lumber* shall also be acceptable for use in one- or two-story structures as columns when the design loads are 25% greater than required in Chapter 16; as joists, principal beams, and girders in floor constructions when the design loads are 15% greater than required in Chapter 16; and as other elements when the design loads are as required in Chapter 16.

When native lumber is used, it shall be subject to the following requirements:

1. Sizing Criteria: For lumber, sized in accordance with the DOC PS-20, figures for maximum fiber stress and modulus of elasticity for framing grade No. 2 shall be used in establishing span and spacing characteristics for all structural members.
2. Stress Criteria: Lumber which is sized in excess of the dimensions established by the DOC PS-20 for the given nominal size referenced shall be allowed to have a maximum fiber stress increase above that provided in section 2303.1.12 item 1 in proportion to the increased bearing capacity of the cross section as provided in Table 2303.1.12.

2303.1.12 Insert TABLE 2303.1.12**TABLE 2303.1.12 NATIVE LUMBER - ALLOWABLE STRESSES**

Nominal Size	Actual Lumber Size (closest size which does not exceed the size shown) width (in.) x height (in.)	Multiplier factor based on lumber width	Value to be added to multiplier factor for lumber with larger widths than those shown in column 2 for width increases:	
			> ¼ and ≤ ½ in.	> ½ and ≤ 1 in.
3 x 8	2 ½ x 7 ½	1.0 x Fs		
	2 ½ x 7 ¾	1.07	0.10	0.20
	2 ½ x 8	1.14		
3 x 10	2 ½ x 9 ½	1.0		
	2 ½ x 9 ¾	1.05	0.10	0.20
	2 ½ x 10	1.11		
3 x 12	2 ½ x 11 ½	1.0		
	2 ½ x 11 ¾	1.04	0.10	0.20
	2 ½ x 12	1.09		
3 x 14	2 ½ x 13 ½	1.0		
	2 ½ x 13 ¾	1.04	0.10	0.20
	2 ½ x 14	1.07		
4 x 10	3 ½ x 9 ½	1.0		
	3 ½ x 9 ¾	1.05	0.07	0.14
	3 ½ x 10	1.11		
4 x 12	3 ½ x 11 ½	1.0		
	3 ½ x 11 ¾	1.04	0.07	0.14
	3 ½ x 12	1.09		
4 x 14	3 ½ x 13 ½	1.0		
	3 ½ x 13 ¾	1.04	0.07	0.14
	3 ½ x 14	1.08		

NON-TEXT PAGE

CHAPTER 24: GLASS AND GLAZING

2406.1 Add a second sentence to read as follows:

Also *see* M.G.L. c. 143, §§ 3T, 3U, and 3V.

NON-TEXT PAGE

CHAPTER 25: GYPSUM BOARD AND PLASTER

There are no amendments to Chapter 25.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 26: PLASTIC

2602.1 Change the definition title of **FOAM PLASTIC INSULATION** to **FOAM PLASTIC**

2604.1.1 Add subsection:

2604.1.1 Foam Plastics for Use in A-2 Occupancies. Foam plastics shall not be permitted in A-2 USE occupancies unless the room or space in which the foam plastics are installed is/are equipped with an automatic fire suppression system in accordance with Chapter 9.

2605.1.1 Add section:

2605.1.1 Foam Plastics for Use in A-2 Occupancies. Foam plastics shall not be permitted in A-2 USE occupancies unless the room or space in which the foam plastics are installed is/are equipped with an automatic fire suppression system in accordance with Chapter 9.

2606.7.5 Replace 'approved electrical luminaires' with 'approved electrical luminaires, conforming to applicable requirements of 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*'

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 27: ELECTRICAL

2701.1 Replace 'NFPA 70' with '527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*'.

2702.1 Replace as follows:

2702.1 Installation. Emergency and standby power systems required by this code shall be installed in accordance with this code, 527 CMR 12.00, and NFPA 110 and 111.

2702.1.1.1 Add subsection:

2702.1.1.1 Air Quality Control. See 310 CMR 7.00: *Air Pollution Control* for regulation on point source generation.

2702.2.19 Replace as follows:

2702.2.19 Elevators. Emergency and standby power for elevators shall be provided as required by 524 CMR.

NON-TEXT PAGE

CHAPTER 28: MECHANICAL SYSTEMS

2801.1: Replace as follows:

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with the *International Mechanical Code 2009*. Masonry chimneys, fireplaces and barbecues shall comply with the *International Mechanical Code 2009* and Chapter 21 of this code. Where the jurisdiction of the specialized codes of M.G.L. c. 143, § 96 control the listing, design, installation, maintenance, alteration or inspection of mechanical systems the requirements of the specialized codes of M.G.L. c. 143, § 96 shall apply.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 29: PLUMBING SYSTEMS

2901.1 Replace as follows:

2901.1 Scope. The regulations found in the Board of State Examiners of Plumbers and Gas Fitters found in 248 CMR shall govern the erection, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with 248 CMR.

2902 and **2903**: Delete.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS

3001.1 Replace as follows:

3001.1 Scope. 524 CMR governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.

3001.2 Replace as follows:

3001.2 Referenced Standards. *See* 524 CMR.

3001.3 Replace as follows:

3001.3 Accessibility. *See* 521 CMR.

3001.4 Replace as follows:

3001.4 Change in Use. *See* 524 CMR.

3002.1.1 Replace the exception as follows:

Exception. The operation of elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall is governed by 524 CMR.

3002.1.2 to 3002.6 and 3002.8 Replace the text of each of these sections with: 'For requirements of these sections *see* 524 CMR.'

3003 through 3006 Replace the text of each of these sections with: 'For requirements of these sections *see* 524 CMR.'

3007 FIRE SERVICE ACCESS ELEVATOR and 3008 OCCUPANT EVACUATION ELEVATORS Reserved.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009***CHAPTER 31: SPECIAL CONSTRUCTION****3101.1** Add a second sentence as follows:

Referenced in this chapter are the *International Fire Code* (IFC) and the *International Mechanical Code 2009* (IMC). When referenced, the requirements within these codes shall be used to the extent as described in section 101.4.

3104.1 Add a last sentence as follows:

Pedestrian walkways and tunnels shall also conform to applicable requirements of 521 CMR.

3104.4 Replace as follows:

3104.4 Contents. Only materials and decorations conforming to Chapter 8 and 527 CMR, and approved by the *building official* in consultation with the fire official, shall be located in the pedestrian walkway.

3108.3 Add section:

3108.3 Grounding. Towers shall be permanently and effectively grounded per the requirements of 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)*.

3109.1 After the existing sentence add this text:

See also the following for applicable requirements:

1. M.G.L. c. 140, § 206 for enclosures to public and semi-public outdoor in-ground swimming pools;
2. 521 CMR 19.00: *Recreational Facilities*;
3. 105 CMR 430.000: *Minimum Standards for Recreational Camps for Children (State Sanitary Code: Chapter IV)* and 105 CMR 435.00: *Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V)*;
4. 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* for the installation of electrical wiring and electrical devices
5. 248 CMR for the installation of gas-fired pool heaters

3109.3 Delete**3111** Add section:**SECTION 3111 TEMPORARY OVERNIGHT SHELTERS**

3111.1 Scope and Purpose. The purpose of this section is to establish reasonable standards for the use of facilities designed for other purposes to be safely occupied temporarily as overnight shelters. This section is promulgated by the the BBRS in acknowledgment of the safety concerns associated with homelessness and the desire to provide shelter even if a site does not meet ideal safety standards as set out in other provisions of this code. In this regard, the State Building Code is not intended to serve as a barrier to those seeking to assist individuals in need by providing shelter, but instead to offer a means to ensure that a reasonable degree of life safety is provided to the occupants of such temporary overnight shelters.

3111.2 Temporary Overnight Shelter Defined. For purposes of this section 3111, a temporary overnight shelter shall be defined as any facility designed and used primarily as a church or house of worship for religious services or instruction which is owned or operated by a religious organization and qualified for exemption under 26 U.S.C. section 501(c)(3) of the Internal Revenue Code. The primary use of the facility is for religious services or instruction but may, on occasion, provide a sanctuary from the cold weather to a limited number of individuals for a limited period of time as provided for.

3111.3 Limitations of Use:

1. A temporary overnight shelter may operate:
 - a. for not more than 35 days per year,
 - b. for not more than seven consecutive days.

31.00: continued

Exception. Shelters may operate for not more than 14 consecutive days between June 15, 2010 and September 30, 2010.

2. The limitations set forth by section 3111.3 may be exceeded in the event that a state of emergency is declared by the Governor in accordance with St. 1950, c. 639 or due to an emergency deemed detrimental to the public health pursuant to M.G.L. c. 17, § 2A.

3111.4 Approval and Temporary Certificate of Occupancy. In order to operate a temporary overnight shelter, a temporary certificate of occupancy must first be issued by the *building official*. Application for a certificate shall be made as follows:

1. The application must contain information demonstrating that the structure meets the following requirements:
 - a. It has been issued a valid certificate of occupancy for its current use.
 - b. It is equipped with a functioning sprinkler system or is suitably protected by a smoke and/or heat detection and alarm system, and a carbon monoxide detection system. Battery operated interconnected detectors may be satisfactory depending upon the location.
 - c. It contains adequate means of egress relative to the number of approved overnight occupants.
 - d. It contains adequate emergency lighting and egress signage.
 - e. It contains the necessary facilities in accordance with the applicable guidelines promulgated by the Massachusetts Department of Public Health.
 - f. Attestation that the structure meets the requirements of the Architectural Access Board's regulations at (521 CMR).
2. The application must include the following:
 - a. Zoning approval (if applicable).
 - b. A site plan (internet accessed satellite maps may be sufficient if properly labeled).
 - c. A plan for compliance with the applicable guidelines promulgated by the Massachusetts Department of Public Health.
 - d. A fire safety and egress plan. The plan shall include, but not be limited to:
 - i. The identification of the anticipated nightly occupant load.
 - ii. A diagram of the bed and personal space layout.
 - iii. The identification of exits and aisles leading thereto.
 - iv. Outline of procedures for accounting for employees and occupants after evacuation.
 - v. Outline of procedures for the evacuation of occupants with special needs.
 - vi. The identification of the preferred and any alternative person responsible for reporting fires and other emergencies to the fire department.
 - vii. A plan for assignment of personnel responsible for oversight of evacuation.
 - viii. A plan for training of employees relative to emergency evacuation.
 - e. Identification of an on-site individual responsible for ensuring compliance with section 3111.0.
3. Upon receipt of a completed application, the *building official* shall forward the application to the municipal fire chief and health official for their review. A site visit shall then be undertaken collectively by the *building official*, fire official, health official, building owner, and the applicant, or their respective designees. Said officials shall assess the suitability of the structure for issuance of a temporary certificate of occupancy and ensure the accuracy and efficiency of the documentation submitted in accordance with section 3111.4 items 1. and 2. Promptly after the site visit is completed, the *building official* shall either approve the application and issue the temporary certificate of occupancy, or deny the application, or approve the application and issue the temporary certificate of occupancy with conditions. The *building official* may condition the issuance of a certificate upon anything that he determines is necessary to ensure the safety of the occupants of the shelter and consistent with section 3111.1. Prior to taking action, the *building official* shall review the application with the fire chief and health official. The *building official* shall consider any recommendations made by the fire chief or health official with due regard for their concerns. However, the *building official* shall not issue any temporary certificate over the objection of the Head of the Fire Department or the local Board of Health.

31.00: continued

4. Temporary certificates of occupancy shall not be issued for a period to exceed one year. Applications for renewal shall be reviewed in accordance with section 3111.4 items 1. through 3.
5. If issued, the temporary certificate shall reflect the name of the organization it was issued to, the name of the party responsible for the operation of the shelter, the address of the shelter, the issuance date, the expiration date, any conditions of issuance ordered pursuant to section 3111.4 item 3., and the maximum allowed occupant load.
6. A temporary certificate of occupancy may be revoked by the *building official* at any time for a violation of any provision of section 3111.0, any violation of the General Laws, or for any reason necessary to ensure the safety of the occupants of the structure. The terms of issuance of the certificate may similarly be modified. Any such action may be appealed to the Building Code Appeals Board in accordance with M.G.L. c. 143, § 100.

3111.5 Operation of Shelter:

1. The party responsible for the operation of the shelter must notify the municipal *building official* and fire chief in writing at least 24 hours prior to each period of operation. The notification must include a statement as to the anticipated number of days the shelter will be in operation and an estimate as to the number of individuals who will be in occupancy per night. Notification shall similarly be made within 24 hours after use of the shelter has ended.
2. The temporary certificate of occupancy issued pursuant to section 3111.4 shall be conspicuously posted at the main entrance to the shelter.
3. A document shall be posted, in a location approved by the municipal *building official* and the head of the fire department, containing an accurate number of sheltered occupants on a nightly basis. Such document shall also contain the names of all workers and volunteers who are overseeing or assisting in the shelter usage on a nightly basis.
4. The shelter shall be set up and operated in accordance with the documentation submitted pursuant to section 3111.4 item 2. and any conditions mandated under Section 3111.4 item 3.

3111.6 Access by Public Officials. Access to the shelter for purposes of ensuring compliance with Section 3111.0 shall be granted upon request by the *building official*, fire chief, health official, or police officer.

3112 Add section:

SECTION 3112 TEMPORARY EMERGENCY USE

3112.1 General. Except as noted herein, the provisions of section 3112 shall apply to *temporary emergency uses*.

3112.1.1 Permit Required. *Temporary emergency uses* shall not be operated or maintained for any purpose without first obtaining a permit from the municipal official having jurisdiction.

3112.2 Construction Documents. A written request for the Temporary Emergency Use change, identifying the address-specific property is required.

3112.3 Certification. A *temporary emergency use* shall be so identified by a special certificate of use and occupancy as established for such purpose (*see* the Department of Public Safety website www.mass.gov/dps for an example of this special certificate of use and occupancy) by the municipal or state *building official* in consultation with other appropriate municipal and state officials in accordance with procedures established for such purposes.

3112.4 Means of Egress: All *temporary emergency uses* shall conform to the *means of egress* requirements of Chapter 10 to the degree practicable.

NON-TEXT PAGE

CHAPTER 32: ENCROACHMENTS INTO THE PUBLIC WAY

3201.1 Add this text after the existing sentence:

310 CMR 10.00: *Wetlands Protection*, the Massachusetts Storm water Policy, local sewer use regulations and local bylaws/ordinances regulating storm water discharges also set requirements that, when applicable, must be satisfied. Likewise drainage requirements of 248 CMR, when applicable must be satisfied. Also to meet accessibility requirements of 521 CMR for existing buildings with exit constraints, local jurisdictions may allow encroachment onto public right-of-way.

NON-TEXT PAGE

CHAPTER 33: SAFEGUARDS DURING CONSTRUCTION

3301.1 Add these two notes at the end of this section:

Note 1. As applicable, Department of Environmental Protection (DEP) Regulations, 310 CMR 7.09: *U Dust, Odor, Construction and Demolition*, and 310 CMR 7.15: *U Asbestos*, DEP Regulations addressing asbestos, and the requirements of M.G.L. c. 111, § 150A, addressing disposal of demolition debris, must be satisfied.

Note 2. As applicable, 527 CMR, in conjunction with M.G.L. c. 148, § 27A must be satisfied if fire protection systems are to be dismantled, shut-off, or modified.

3305.1 Replace 'the *International Plumbing Code*' with '105 CMR and 248 CMR'

3309.1 Add a note 4.

4. Fire extinguisher requirements of 527 CMR shall also be satisfied.

3309.2 Replace as follows:

3309.2 Fire Hazards. The provisions of this code and the Board of Fire Prevention Regulations at 527 CMR shall be strictly observed to safeguard against all fire hazards attendant upon construction operations. The fire protection *construction documents* shall provide specifications for conformance to this chapter and NFPA-241 listed in Chapter 35 in order to safeguard against fires during construction, alterations and demolition of all buildings and structures regulated by this code.

3313 Add section:

SECTION 3313 DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION

3313.1 Design Loads. The design loads on partially completed structures and temporary structures, including scaffolding, bracing and shoring, shall be in accordance with ASCE 37.

3313.2 Structural Integrity During Construction. The structural integrity of partially completed and temporary structures shall comply with ASCE 37, section 1.3.2.

NON-TEXT PAGE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL EXISTING BUILDING CODE 2009*

CHAPTER 34: EXISTING STRUCTURES

3401.1 Replace as follows:

3401.1 Scope. Chapter 34 of the *International Building Code 2009 (IBC 2009)* is deleted in its entirety. The alteration, repair, addition, and change of occupancy of existing buildings shall be controlled by the provisions of the *International Existing Building Code 2009 (IEBC 2009)* and its appendices, and as modified with Massachusetts Amendments as follows:

101.1 Replace as follows:

101.1 Title. These regulations shall be known as the *Existing Building Code* of Massachusetts, referred to as "this code."

101.2 Replace as follows:

101.2 Scope. The provisions of this code shall apply to the repair, alteration, change of occupancy, addition, and relocation of existing buildings, except as otherwise required by section 102.2.2.

All references in this code to the *International Fuel Gas Code*, *International Plumbing Code*, *International Property Maintenance Code*, *International Fire Code*, and the *International Electrical Code*, are superseded as applicable by MA specialty codes per subsection 101.4 of the Massachusetts Amendments to the *International Building Code 2009*, unless noted otherwise further on within these amendments. In addition subsection 101.1 of the Massachusetts Amendments to the *International Building Code 2009*, 101.4 notes Massachusetts specialty codes as they apply to environmental protection, water pollution control, elevators, and accessibility. Reference elsewhere in this code to the *International Building Code* shall mean 780 CMR *Base Volume*. Reference elsewhere in this code to the existing buildings pertaining to the *International Residential Code* shall mean 780 CMR *One- and Two-family Dwelling* and the existing building provisions contained therein. The requirements in this code for construction of existing buildings in flood hazard areas and/or coastal dunes shall not apply and instead 780 CMR Appendix G shall apply.

101.5.0 Add subsections:

101.5.0 Compliance Alternatives. Except for structural work, where compliance with the provisions of the code for new construction, required by this code, is impractical because of construction difficulties or regulatory conflicts, compliance alternatives may be accepted by the *building official*. Examples of compliance alternatives and archaic construction systems can be found at the FAQ link at www.mass.gov/dps. The *building official* may accept these compliance alternatives, archaic construction systems, or others proposed. If the compliance alternative involves fire protection systems the *building official* shall consult with the fire official.

101.5.0.1 Submittals. The application for a *building permit* shall be in accordance with subsection 107.2.1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 107.2.1) and identify all items of non- or partial compliance with the requirements of this code, and compliance alternatives, if any are proposed, for approval by the *building official*. The *building official* shall respond to the acceptability of any proposed compliance alternatives within 30 days of the filing of the *building permit* application. Where proposed compliance alternatives are, in the opinion of the *building official*, unacceptable, or where issues of non-compliance remain, the permit applicant shall have the remedies prescribed by section 113 of the *International Building Code 2009* with the Massachusetts Amendments (780 CMR 113).

101.5.1 Delete the text: 'in buildings complying with the *International Fire Code*'

101.5.4.0 Add subsection:

101.5.4.0 Investigation and Evaluation. For any proposed work regulated by this code and subject to subsection 107.6 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 107.6) as a condition of the issuance of a building permit the building owner shall cause the *existing building* (or portion thereof) to be investigated and evaluated in accordance with the provisions of this code. This may include, but not be limited to: evaluation of design gravity loads, lateral load capacity,

34.00: continued

egress capacity, fire protection systems, fire resistive construction, interior environment, hazardous materials, and energy conservation.

The investigation and evaluation shall be in sufficient detail to ascertain the effects of the proposed work on the *work area* under consideration and, the entire building or structure and its foundation if impacted by the proposed work.

The results of the investigation and evaluation, along with any proposed *compliance alternatives*, shall be submitted to the *building official* in written report form.

101.5.4.1 Item 1. Replace this Item as follows:

1. *The International Building Code 2009* with Massachusetts Amendments using 100% of the prescribed forces. For existing buildings with seismic force resisting systems found in Table 101.5.4.1.0, the values of R , Ω_o , and C_d from this table shall be used in the analysis. For seismic force resisting systems not found in Table 101.5.4.1.0, the values of R , Ω_o , and C_d used for analysis in accordance with Chapter 16 of the *International Building Code 2009* with Massachusetts Amendments, (780 CMR 16.00) shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "Intermediate" or "Special".

101.4.1.0 Insert Table 101.5.4.1.0

TABLE 101.5.4.1.0

BASIC SEISMIC-FORCE-RESISTING SYSTEM	R	Ω_o	C_d
Bearing Wall Systems			
Steel concentrically braced frame (CBF) with diagonal ³ or X-bracing			
CBF per 6 th Edition SBC ² except for Section 9.5 of 1992 AISC Seismic Provisions	3.5	2	3.5
Otherwise ⁴	3	3	3
Steel CBF with V, Inverted V or K bracing			
V or Inverted V bracing per 6 th Edition SBC ²	3	3	3
V or Inverted V bracing, otherwise ⁴	3	3	3
K bracing	1.25	1.25	1.25
Reinforced concrete shear walls with boundary elements and without coupling beams, in accordance with 780 CMR 1113.5.1.4a, 5 th Edition	5	2.5	5
Reinforced concrete shear walls with reinforcing steel less than required by, or with spacing greater than permitted by Section 11.9.9 of ACI 318-08	1.5	1.5	1.5
Unreinforced concrete shear walls	1.25	1.25	1.25
Reinforced masonry shear walls			
Class A ⁵	4.5	2.5	3.5
Class B ⁶	2.25	2.25	2.25
Class C ⁷	1.25	1.25	1.25
Unreinforced masonry shear walls	1.25	1.25	1.25
Light-framed walls sheathed with wood structural panels or diagonal sheathing	4	2.5	3
Other light-framed walls ¹⁰	2	2	2
Building Frame Systems			
Steel concentrically braced frame (CBF) with diagonal ³ or X-bracing			
CBF per 6 th Edition SBC ² except for Section 9.5 of 1992 AISC Seismic Provisions	4	2	3.5
Otherwise ⁴	3	3	3
Steel CBF with V, Inverted V or K bracing			
V or Inverted V bracing per 6 th Edition SBC ²	3	3	3
V or Inverted V bracing, otherwise ⁴	3	3	3
K bracing	1.5	1.5	1.5
Reinforced concrete shear walls with boundary elements and without coupling beams, in accordance with 780 CMR 1113.5.1.4a, 5 th Edition	6	2.5	5
Reinforced concrete shear walls with reinforcing steel less than required by, or with spacing greater than permitted by Section 11.9.9 of ACI 318-08	1.5	1.5	1.5
Unreinforced concrete shear walls	1.5	1.5	1.5

34.00: continued

Table 101.5.4.1.0 - continued

Reinforced masonry shear walls			
Class A ⁵	5	2.5	4
Class B ⁶	2.25	2.25	2.25
Class C ⁷	1.5	1.5	1.5
Unreinforced masonry shear walls	1.5	1.5	1.5
Light-framed walls sheathed with wood structural panels or diagonal sheathing	4	2.5	3
Other light-framed walls ¹⁰	2.5	2.5	2.5
Moment Resisting Frame Systems			
Steel moment frames			
Special Moment Frame per 6 th Edition SBC ²	8	3	5.5
Ordinary Moment Frame per 6 th Edition SBC ²	3.5	3.5	3.5
Moment frame, otherwise ⁴	3	3	3
Reinforced concrete moment frames			
Class A ⁸	5	3	4.5
Class B ⁹	2.5	2.5	2.5
Dual Systems (See ASCE 7, Section 12.2.5.1)			
Steel concentrically braced frame (CBF) with steel moment frames (MF)			
CBF and Special Moment Frame, per 6 th Edition SBC ²	5	2.5	4.5
CBF and Moment Frame per 1 st through 5 th Editions SBC ² , except V, Inverted V or K Braced Frames	3.5	2.5	3.5
CBF and Moment Frame per 1 st through 5 th Editions SBC ² , with V, Inverted V or K Braced Frames	3	2.5	3
Otherwise	1.5	1.5	1.5
Reinforced concrete shear walls with boundary elements and without coupling beams, in accordance with 780 CMR 1113.5.1.4a, 5 th Edition, with reinforced concrete moment frames, Class A ⁸	6	2.5	5
Ordinary reinforced concrete shear walls, as defined in 8 th Edition SBC, with reinforced concrete moment frames, Class A ⁸	5.5	2.5	4.5
Notes:			
1. Systems of previous editions of the State Building Code that meet the ductility requirements of the 8 th Edition of the Code are not included in this table.			
2. SBC refers to 780 CMR Commonwealth of Massachusetts State Building Code.			
3. A diagonal brace is one that frames from a beam-to-column connection diagonally to another beam-to-column connection or to a column at its base plate.			
4. The seismic resistance of the frame shall be based on its seismic connections being subject to two times the computed forces and moments resulting from seismic load.			
5. Class A reinforced masonry shear walls have a minimum total area of reinforcement in the vertical and horizontal direction at least 0.0020 times the gross cross-sectional area of the wall, with a minimum area in each direction at least 0.0007 times the gross cross-sectional area of the wall. Maximum spacing of reinforcing steel bars in grouted cells or bond courses is 6'-0" in one direction and 4'-0" in the other direction, but not more than 1/3 of the length or height of the wall, whichever is less, in each direction. Class A walls satisfy other requirements for reinforced masonry of the base code.			
6. Class B reinforced masonry shear walls satisfy all requirements for Class A walls, except that spacing limits for reinforcing steel bars are exceeded.			
7. Class C reinforced masonry shear walls satisfy all requirements for reinforced masonry of the base code.			
8. Class A reinforced concrete moment frames satisfy requirements of Sections 1113.5.1, 1113.5.1.1, 1113.5.1.2 and 1113.5.1.3 of 780 CMR 5 th Edition and Sections 11.12.1.1 and 11.12.1.2 of ACI 318-83 for reinforcing of beam to column joints.			
9. Class B reinforced concrete moment frames do not satisfy requirements for Class A reinforced concrete moment frames.			
10. Wood siding over horizontal or diagonal boards, plaster on wood or metal lath, and stucco on metal lath may be used to resist in-plane shear, where the walls are anchored to floors and to the floor or roof construction above such that they can transfer the shear between floors and to the foundation. Gypsum sheathing, lath, wall board, drywall, fiberboard and particle board are not permitted to resist in-plane shear unless originally designed in accordance with 780 CMR for that purpose.			

34.00: continued

101.5.4.2 Add these exceptions to Item 1.

Exceptions:

1. *The International Building Code 2009* with Massachusetts Amendments using 50% of prescribed forces when directed here by sections 807.4.3
2. *The International Building Code 2009* with Massachusetts Amendments using
 - a. 50 % of prescribed forces when directed here by Section 1003.3.1 and when the vertical addition increases the building area less than or equal to 30%.
 - b. 75% of prescribed forces when directed here by section 1003.3.1 and when the vertical addition increases the building area more than 30% but less than 50%.

101.9 Add subsection:

101.9 Cumulative Effects of Alterations, Additions, or Changes of Occupancy on Structural Elements. As noted in several sections of this code, evaluation of structural elements and their connections shall consider the cumulative effects of alterations, additions, or changes of occupancy since original construction. Alterations, additions, or changes in occupancy that meet all of the following criteria, are exempt from consideration of cumulative effects on structural elements:

1. Structural work does not involve more than 2% of the total tributary area of horizontal framing members of any existing framed floor or roof.
2. Structural work does not alter shear walls above the foundation.
3. Structural work does not alter columns or diagonal braces.
4. Structural work does not create an opening in any framed floor or roof that has an area more than 2% of the framed floor or roof.
5. Structural work does not alter any floor or roof diaphragm and its connections such that in-plane shear resistance is reduced by more than 5%.
6. Structural work does not remove or reconfigure lateral load resisting frames, or foundations supporting them.

101.10 Add subsection:

101.10 Masonry Walls. For alterations to buildings with masonry walls, all masonry walls shall comply with the provisions of Appendix A1 as modified by Massachusetts Amendments, where any of the following conditions exist:

1. the work area exceeds 50% of the aggregate area of the building, or
2. an occupancy increase of more than 25% and to a total of 100 or more, or
3. a change of occupancy to a relative hazard category of 1 or 2 per Table 912.5, or educational occupancies K to 12, or
4. a Level 2 Alteration, as defined by section 404, to an Occupancy Category IV per ASCE 7.

102.2 Replace as follows:

102.2 Other Laws and Specialty Codes. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law, or the regulations pursuant to specialty codes listed in section 101.4 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 101.4).

102.2.1 Add subsection:

102.2.1 Fire Protection Systems. Notwithstanding other provisions of this code, the requirements of this section are applicable in existing buildings. In case of conflict, between regulations of 780 CMR, the more restrictive requirement applies.

102.2.1.1 Add subsection:

102.2.1.1 Major Alterations. When existing buildings or portions thereof undergo additions or alterations, M.G.L. c. 148, § 26G may apply with respect to automatic sprinkler requirements. The requirements of this statute are enforced by the fire official. Applicability of these requirements can be found at the Department of Fire Services web site www.mass.gov/dfs.

34.00: continued

102.2.1.2 Add subsection:

102.2.1.2 Other Cases Where Required. Fire protection systems are required for the following cases:

1. Carbon monoxide alarms are required and shall be selected and installed in accordance with the applicable requirements of 527 CMR and/or 248 CMR and Chapter 9 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 9.00).
2. Existing buildings or portions thereof when changed in use to an A-2 Nightclub occupancy shall be protected with an automatic fire suppression system. Where the A-2 Nightclub occupancy is created in a mixed use building, the A-2 Nightclub occupancy, including all ingress and egress portions shall require automatic fire suppression when the occupant load is 50 or greater; additionally in such mixed use, the A-2 Nightclub occupancy shall be separated from adjacent uses by one hour horizontal and vertical fire separation assemblies in accordance with the applicable provisions of Chapter 7 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 7.00).
3. Notwithstanding the provisions of this code, automatic fire suppression systems are required in municipalities which have adopted the provisions of M.G.L. c. 148, § 26H or I; also *see* M.G.L. c. 143, § 97A, and M.G.L. c. 148, § 26G½ relative to statutory prospective and retroactive sprinkler requirements for A-2 nightclubs and similar uses.

102.2.1.3 Add subsection:

102.2.1.3 Change in Commodity or Storage Arrangement. Existing buildings, or portions thereof, in which there is a change in occupancy classification, commodity classification, or storage arrangement, as defined by NFPA 13, requires an evaluation of the existing sprinkler system for compliance with NFPA 13 and NFPA 25.

In enforcing the provisions of this section the *building official* may require or accept engineering or other evaluations of the fire protection systems in order to identify possible noncompliant conditions and acceptable solutions. If the evaluation determines that alterations are necessary, the *building official* shall order the abatement of such conditions.

102.2.2 Add subsection:

102.2.2 Existing Hazardous Conditions. This section shall apply to all existing buildings

102.2.2.1 Existing Non Conforming Means of Egress. The following conditions shall be corrected in all existing buildings:

1. Less than the number of *means of egress* serving every space and/or story, required by Chapter 10 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 10.00);
2. Any required *means of egress* component which is not of sufficient width to provide adequate exit capacity in accordance with section 1005.1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1005.1);
3. Any means of egress which is not so arranged as to provide safe and adequate *means of egress*, including exit signage and emergency lighting in accordance with Chapter 10 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 10.00); or
4. Where the occupant load of an existing Group A-2 Nightclub use is 50 or greater, the main entrance/exit door shall be a minimum 72 inches (nominal) width. This main entrance/exit door shall consist of a pair of side-hinged swinging type doors without a center mullion and shall be equipped with panic hardware (*see* Chapter 10 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 10.00)). As an alternative, or where construction, regulations or other conditions exist which would preclude the installation of said main entrance/exit door and associated exit access, the owner shall cause the existing means of egress system to be evaluated by a *registered design professional*. Such evaluation shall determine whether the existing means of egress is sufficient to accommodate the occupant load or whether the existing means of egress requires improvement to accommodate safely the occupant load. If the existing means of egress is insufficient to accommodate the occupant load, such inadequate means of egress will, as a minimum, be deemed in violation of this code. Calculation methodologies based on alternative approaches to life safety may be utilized in order to effect said egress evaluation.

34.00: continued

If not corrected, the *building official* shall cite each deficiency in writing as a violation. Said citation shall order the abatement of the non conformance and shall include such a time element as the *building official* deems necessary for the protection of the occupants thereof, or as otherwise provided for by statute.

102.2.2.2 Exit Order for Hazardous Means of Egress. In any *existing building* or structure not provided with exit facilities as herein prescribed and in which the exits are deemed hazardous or dangerous to life and limb, the *building official* shall declare such building dangerous and unsafe in accordance with the provisions of section 116 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 116). Any person served with any *such* order shall have the remedy prescribed in section 116 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 116).

102.2.2.3 Fire Escapes. Fire escapes shall be permitted in accordance with section 305.

102.2.2.4 Testing and Certification of Egress Structures. All exterior bridges, steel or wooden stairways, fire escapes and egress balconies and their structural anchorage shall be examined and/or tested, and certified for structural adequacy and safety every five years, by a *registered design professional*, or others qualified and acceptable to the *building official*; said professional or others shall then submit an affidavit to the *building official*.

102.2.2.5 Unsafe Lighting and/or Ventilation. In any existing building, or portion thereof, in which (a) the lighting or ventilation do not meet the applicable provisions in Chapter 12 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 12.00), and (b) which, in the opinion of the *building official*, are dangerous, or hazardous, to the health and safety of the occupants, the *building official* shall order the abatement of such conditions to render the building or structure occupiable or habitable as applicable for the posted use and occupant load.

In enforcing the provisions of this section the *building official* may require or accept engineering or other evaluations of the lighting and/or ventilation systems in order to evaluate possible dangerous or hazardous conditions and acceptable solutions.

Where full compliance with 780 CMR for new construction is not practical for structural and/or other technical reasons, the *building official* may accept compliance alternatives, or engineering or other evaluations which adequately address the building or structure livability for the posted use and occupant load.

PART 2 – ADMINISTRATION AND ENFORCEMENT and all sections contained within it, replace with:

PART 2 – ADMINISTRATION AND ENFORCEMENT. For administration and enforcement provisions refer to sections 103 through 116 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 103 through 116).

202 Add two definitions as follows:

COMPLIANCE ALTERNATIVE. An alternative life-safety construction feature which meets or exceeds the requirements or intent of a specific provision of 780 CMR. The *building official* is authorized to approve or disapprove compliance alternatives. Compliance alternatives are only permitted for existing buildings.

HOUSE MUSEUM. A *house museum* is an *historic building* or structure. The principal use of such must be as an exhibit of the building or the structure itself which is open to the public not less than 12 days per year, although additional uses, original and/or ancillary to the principal use shall be permitted within the same building up to maximum of 40% of the gross floor area. All entries into the *house museum* list shall be certified by the Massachusetts Historical Commission. The list can be found at <http://www.sec.state.ma.us/mhc/>

302.2 Replace the text with ‘See 780 CMR Appendix G.’

34.00: continued

302.3 After the first sentence, add this sentence:

The cumulative effect of the load increase since original construction shall be considered.

303.2 Replace the text with 'See 780 CMR Appendix G.'

303.3 After the first sentence, add this sentence:

The cumulative effect of the load increase since original construction shall be considered.

303.4 Replace the first occurrence of the word "with" with the word "where".

303.6 Replace as follows:

303.6 Means of Egress Capacity Factors. For means of egress capacity refer to section 102.2.2.1

304.5 Replace the text with 'See 780 CMR Appendix G.'

305.1 Add a second sentence as follows:

Existing fire escapes shall comply with the testing and certification requirements of section 102.2.2.4.

307.6, 307.7, and 307.9 Delete these subsections.

310.1 Replace as follows:

310.1 Scope. Accessibility requirements shall be in accordance with 521 CMR.

310.2 to 310.9 Delete these sections.

405.1: Add to the end of the first sentence, this phrase:

"and where required by a change of occupancy classification in accordance with section 912.1.1"

503.2 Add subsection:

503.2 Major Alterations. Automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1

504.1 Replace as follows:

504.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress, and in accordance with section 102.2.2.1.

505.1 Replace this subsection:

505.1 General. Accessibility requirement shall be in accordance with 521 CMR.

507 and 509 Delete these sections.

603.2 Add section:

603.2 Major Alterations. In addition to the requirement in section 603 automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1

604.1 Replace this section:

604.1 General. Alterations shall be done in a manner that maintains the level of protection provided for the means of egress, and in accordance with section 102.2.2.1.

605.1 through 605.1.14 Replace as follows:

605.1 General. Accessibility requirements shall be in accordance with 521 CMR. Elevator and platform lift installation requirements are per 524 CMR.

605.2 Delete.

606.2 Replace 'reproofing' with 'reroofing'

34.00: continued

606.2 To exceptions 1 and 2, add a second sentence as follows:

The cumulative effects since original construction shall be considered.

606.2.1 Replace 'D, E, or F' with 'B, C, D, E, or F'

606.3.1 Replace 'D, E, or F' with 'B, C, D, E, or F'

606.3.1 Add this exception:

Exception. Masonry parapets with a height to thickness ratio of 2.5 or less. The height of the parapet shall be measured from the level of where the unreinforced masonry walls are connected to the roof diaphragm.

606.3.2 Replace 'Where roofing ...90 mph or in a special wind region, as defined in section 1609 of the *International Building Code*' with 'Where roofing materials are removed from the entire roof diaphragm of a building or section of a building located where one of the following conditions apply:

1. the basic wind speed is greater than 90 mph and the occupancy category is type III or type IV as defined in Table 1604.5 of the *International Building Code 2009* with Massachusetts Amendments, (780 CMR 1604, Table 1604.5).
2. the basic wind speed is greater than or equal to 105 mph.

701.1 Replace the exception as follows:

Exception. Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of 521 CMR.

704.1.2 Add subsection:

704.1.2 Major Alterations. In addition to the requirement in section 704, automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1

704.2.2 Add this exception:

Exception. R-2 structures of three units, undergoing Level 2 renovations, are exempt from the requirements of this section provided that:

1. The work area is on a single unit and,
2. No other building permits for Level 2 work have been issued for the building in the previous two years.

704.2.2 Item 3., 704.2.3, and 704.2.4 Item 2. Delete the word 'municipal'

704.2.5 Replace as follows:

704.2.5 Supervision. Fire sprinkler systems required by this section shall be supervised in accordance with Chapter 9 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 9.00).

704.4.1.1 through 704.4.1.7, and 704.4.3 Replace '*International Fire Code*' with 'Chapter 9 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 9.00)'.

705.2 Replace as follows:

705.2 General. For means of egress capacity refer to section 102.2.2.1.

705.2 Delete Exceptions 1. and 2.

705.3.1 Replace as follows:

705.3.1 Minimum Number. The minimum number of exits shall be in accordance with section 102.2.2.1

705.3.1.1 Delete.

705.3.1.2 Replace subsection as follows:

705.3.1.2 Fire Escapes Required. Refer to section 102.2.2.

34.00: continued

705.3.3 Add a last sentence as follows:

Group A-2 Nightclubs with an occupant load of 50 or greater shall be provided with a main entrance/exit door having a minimum width of 72 inches nominal in accordance with 102.2.2.1.

705.4.4 Add a last sentence as follows:

The required entrance and exit doors in Group A-2 Nightclubs with an occupant load of 50 or greater shall be provided with approved panic hardware in accordance with 102.2.2.1.

706.1 Replace this subsection:

706.1 General. Accessibility requirements shall be in accordance with 521 CMR.

706.2 to 706.5 Delete these sections.

707.4 Add this as a second sentence to Exception 1:

The cumulative effect of the stress increase since original construction shall be considered for the purposes of this exception.

707.5.1 Add subsection:

707.5.1 Irregularities. Where the alteration results in a structural irregularity as defined in ASCE 7, the lateral load-resisting structural elements shall comply with the structural requirements specified in section 807.4.

708 Delete.

710 Delete.

802.1 Replace this section as follows:

802.1 High-rise buildings. High-rise building as defined by section 202 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 202) shall comply with the requirements of Sections 802.1.1.

802.1.2 Delete.

804.1 Add this as a second sentence:

In addition to the requirements in section 804, automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1

804.1.1 Delete the word 'municipal' which occurs in two locations.

804.2.1 Delete Exception 2.

807.4.3: At the end of this section add these two sentences:

For the purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with sections 1609 and 1613 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1609 and 1613). For purposes of this section, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of *additions* and alterations since original construction.

902.1 Add items 10. and 11. and the note as follows:

10. Day care. (*see* Chapter 3 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 3.00) for classification)

11. Group homes.

Note. Also *see* section 912 when change of occupancy classification occurs

904.1 Add a second sentence as follows:

In addition to the requirements in section 912 automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1

34.00: continued

906.1 Replace this section as follows:

906.1 General. Accessibility in portions of buildings undergoing a change in occupancy classification shall comply with 521 CMR.

907.1 Add this as a second sentence to the exception:

The cumulative effect of the stress increase since original construction shall be considered for the purposes of this exception.

908 Delete.

910 Delete.

912.8 Replace in its entirety as follows:

912.8 General. Accessibility requirement shall be in accordance with 521 CMR.

1002.3 Delete.

1003.2 To exception 1 add a second sentence as follows:

The cumulative effect of the stress increase since original construction shall be considered.

1003.3.1 Add a second sentence as follows:

Where the addition increases the building area less than 50%, the evaluation and analysis shall demonstrate compliance with reduced *International Building Code 2009* seismic force levels as specified in section 101.5.4.2.

1003.3.3 Replace '807.7' with '707.6'.

1003.3.4 Add subsection:

1003.3.4 Irregularities. Where the addition results in a structural irregularity as defined in ASCE 7, all lateral load-resisting structural elements shall comply with *The International Building Code 2009* wind provisions and the reduced *International Building Code 2009* level seismic forces as specified in section 101.5.4.2.

1003.4 To exception 1 add a second sentence as follows:

The cumulative effect of the stress increase since original construction shall be considered.

1003.5 Replace the text with 'See 780 CMR Appendix G.'

1005.1 Replace this subsection as follows:

1005.1 Minimum Requirements. Accessibility requirements shall be in accordance with 521 CMR.

1101.1 Replace this section as follows:

1101.1 Scope. It is the intent of this chapter to provide means for the preservation of *historic buildings* as certified by the Massachusetts Historical Commission. There is no obligation for owners of historic buildings to use the provisions of this chapter. *This chapter* shall preempt all other regulations of 780 CMR governing the reconstruction, *renovation*, alteration, change of use and occupancy, repair, maintenance and additions for the conformity of historic buildings and structures to 780 CMR, with the exception of section 113 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 113) for appeals, or unless otherwise specified. In case of fire or other casualty to a *historic building*, said building may be rebuilt, in total or in part, using such techniques and materials as are necessary to restore it to its original condition and use group. If a building or structure as a result of proposed work would become eligible for certification as a *historic building* and the Massachusetts Historical Commission so certifies by affidavit, and such affidavit is submitted to the *building official* with the permit application, then the *building official* shall have the authority to allow the work to proceed under the provisions of this chapter

1101.3 Replace all references to 'museum' with '*house museum*'

34.00: continued

1102.5 Replace this subsection as follows:

1102.5 Replacement. Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Such replacements shall not be required to meet the materials and methods requirements of section 501.2. Individual components of an existing building system may be repaired or replaced in kind without requiring the system to comply with the code for new construction.

1102.5 Delete the Exception.

1103.1 Replace as follows:

1103.1 Scope. Historic buildings undergoing alterations, or that are moved shall comply with section 1103.

1103.2 Replace as follows:

1103.2 General.

1103.2.1 Maximum Occupancy. *House museum* occupancy shall be limited by the actual structural floor load capacity as certified by a qualified Massachusetts *registered professional engineer* or *architect* or in accordance with Chapter 10 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 10.00), whichever is less. Said floor load shall be posted in accordance with the procedures set forth in Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00). The owner shall submit evidence of this certification and related computations to the *building official* upon request.

1103.3 Replace as follows:

1103.3 Means of Egress. Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the *building official*, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. When approved by the *building official*, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

Where one or more floors of a *house museum* are limited to one *means of egress*, the occupancy load shall be computed as follows:

1. **Floors below the First Story.** Not more than one occupant per 100 square feet of gross floor area with a maximum occupancy of 49.
2. **First Story.** Not more than one occupant per 50 square feet of gross floor area.
3. **Second Story and Above.** Not more than one occupant per 100 square feet of gross floor area, or 30 occupants per 22 inch unit of egress width, whichever condition results in the lesser occupancy load.

1103.12 Replace as follows:

1103.12 Fire Protection Equipment. Fire protection equipment shall be provided for *house museums* according to the following requirements:

1. **Manual Fire Extinguishing Equipment.** All use groups, other than R-3 and R-4, shall have approved manual fire extinguishing equipment, as determined by the head of the local fire department.
2. **Fire Alarm Systems.** Use groups R-1, R-2 and R-3 shall conform to the requirements of section 907 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 907), as applicable. All other use groups shall comply with section 1103.12 items 2.(a) and (b) of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1103.12 items 2.(a) and (b)).
 - (a) **Locations.** Provide smoke detectors in accordance with manufacturers listing and spacing requirements, but not less than one, for every 1200 square feet of floor area per level. In addition, all lobbies, common corridors, hallways and exitway access and discharge routes shall be provided with approved smoke detectors installed in accordance with the manufacturers listing and spacing requirements but not more than 30 feet spacing between detectors. All required smoke detectors shall have an alarm audible throughout the structure or building.

34.00: continued

(b) **Single Station and Multiple Station Smoke Detection Devices.** As required by Chapter 9 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 9.00).

3. **Manual Pull Stations.** A manual fire alarm pull station shall be provided in the natural path of egress in all use groups except R-3 and R-4. Manual pull stations shall be connected to the building fire warning system in conformance with NFPA 72.

Exception. Historic buildings which are provided with an approved automatic fire-extinguishing system throughout shall not be required to be provided with manual fire extinguishing equipment. Smoke detection devices shall not be required in occupancies other than Use Groups R-1, R-2, and R-3.

1103.12.1 Supervision. Fire alarm systems required by this section shall be supervised in accordance with the requirements of Chapter 9 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 9.00).

Exception. Residential single and multiple station smoke detectors.

1104.1 Replace this section as follows:

1104.1 Accessibility Requirements. For accessibility requirements refer to 521 CMR.

1104.1.1 through 1104.1.4 Delete.

1105.15 Replace this section as follows:

1105.15 Accessibility requirements. For accessibility requirements refer to 521 CMR.

1106.1 Replace this section as follows:

1106.1 General. Historic buildings shall comply with the applicable structural provisions for the work as classified in Chapter 4.

Exceptions

1. The *building official* shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.
2. *House museums* need not comply with the wind load and seismic load requirements of this code.

1301.2 Replace the first sentence with 'Structures in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this chapter or the provisions of Chapters 4 through 12.'

1301.3.4 Add section:

1301.3.4 Peer review. At the discretion of the *building official*, the owner shall engage a *registered design professional* to review the performance compliance evaluation and methodologies proposed to determine compliance with this section. The *registered design professional* shall prepare a written report to the *building official* summarizing the results of their review. Items identified by the *registered design professional* as needing modification in order to be in compliance with this section shall be addressed to the satisfaction of the *building official* prior to the issuance of a building *permit*.

1301.6.14 Replace '*International Fire Code*' with '524 CMR'.

1301.6.14.1 Replace '*International Fire Code*' with '524 CMR'.

1301.6.17 Add note as follows:

Note. Automatic sprinklers required by M.G.L. c. 148 § 26G need not be considered "Required sprinklers" for the purposes of this section.

1401.1 Add two notes at the end of this section:

Note 1. As applicable, Department of Environmental Protection (DEP) Regulations, 310 CMR 7.09: *U Dust, Odor, Construction and Demolition*, and the requirements of M.G.L. c. 111 § 150A, addressing disposal of demolition debris, must be satisfied.

Note 2. As applicable, 527 CMR, in conjunction with M.G.L. c. 148 § 27A must be satisfied if fire protection systems are to be dismantled, shut-off, or modified.

34.00: continued

1401.4.1 Add section:

1401.4.1 Removal of Waste Material. Material shall not be dropped by gravity or thrown outside the exterior walls of a building during demolition or erection. Chutes shall be provided for the removal of such materials. Where the removal of any material will cause an excessive amount of dust, such material shall be wet down to prevent the creation of a nuisance.

Exception. The requirements of this section may be waived based on site conditions if approved by the *building official*.

1401.5 Replace 'the *International Plumbing Code*' with 'the requirements of DPH and 248 CMR, as applicable'.

1407.1 Replace 'Section 110.3' with 'Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00)'.

1408 and 1409 Delete these sections.

Appendix A106.2 Add subsection 4 as follows:

4. The values contained in Table A106.2 shall be used as material property values of the existing material listed therein, unless values are specified by other provisions in this chapter, or values are used, based on available historical information for a particular type of masonry construction, prevailing codes, and assessment of existing conditions.

A106.2 Insert TABLE A106.2 MATERIAL PROPERTY VALUES**TABLE A106.2 MATERIAL PROPERTY VALUES**

Symbol/ Notation	Description	Maximum Value	Notes
f'_m	See Section A104	300 psi	Per section A108.3
E_m	Elastic Modulus in Compression	550,000 psi	Based on $f'_m = 1,000$ psi
f'_{sp}	See Section A104	0 psi	-
v_m	Masonry with running bond lay-up	20 psi	-
v_m	Masonry, fully grouted, with a lay-up other than running bond	20 psi	-
v_m	Masonry, partially grouted or ungrouted, with a lay-up other than running bond	10 psi	-

Table A1-A Replace the value '0.067' with '0.033' and at two locations replace the value '0.133' with '0.067'.

Table A1-B Replace the value '0.13' with '0.067'.

Table A1-F Replace the value '0.13' with '0.067'.

Table A1-G Replace the value '0.13' with '0.067' and at two locations replace '#' with '≤'.

Appendix B. For requirements *see* 521 CMR.

Resource A. This resource may be used with the approval of the *building official*.

NON-TEXT PAGE

CHAPTER 35: REFERENCED STANDARDS

Chapter 35 Replace introductory paragraph with this paragraph as follows:

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in section 102.4. Where a section of this code has been amended to cite a different standard (other than the one listed in this chapter), the referenced standard identified in the body of the code shall prevail, and the referenced standard identified in this chapter is no longer applicable or enforceable as a part of that section. Where a section of this code has been deleted or modified to remove a reference to a specific standard, the referenced standard listed in this chapter is no longer applicable or enforceable as part of this code. Buildings, structures, or conditions not addressed in this code must comply with section 104.10.2.

Insert five referenced standards:

NFPA 140- 2008 which is referenced by MA amendment to Chapter 4.
NFPA 15 – 2007.
NFPA 720 – 2009.
NFPA 750- 2010.
NFPA 130- 2010 “Standard for Fixed Guideway Transit and Passenger Rail Systems” .

Replace, with later editions, the following two referenced standards:

NFPA 72 – 2010.
NFPA 92B – 2009.

NON-TEXT PAGE

(780 CMR 36.00 THROUGH 109.000: RESERVED)

(PAGES 151 THROUGH 250 ARE RESERVED FOR FUTURE USE.)

780 CMR 110.00**780 CMR 110.R1****CONCRETE TESTING LABORATORIES LICENSING**

(Note: 780 CMR 110.R1 is unique to Massachusetts)

110.R1.1 Scope. The provisions of 780 CMR 110.R1 shall govern the licensing of laboratories that test concrete and concrete aggregates.

110.R1.2 Definitions. The following words and terms shall, for the purpose of 780 CMR 110.R1, and as used elsewhere in this code, have the meanings shown in 780 CMR 110.R1.2:

BRANCH LABORATORY. A concrete testing laboratory physically removed from the *principal laboratory*. A branch laboratory may have *project laboratories*.

CONCRETE TESTING LABORATORY. A proprietorship, corporation, partnership or agency which conforms to the requirements of ASTM E 329-07 as modified by 780 CMR 110.R1. A concrete testing laboratory shall mean the *principal laboratory*, *branch laboratory* or *project laboratory* unless otherwise specified.

LABORATORY. A concrete testing laboratory.

PRINCIPAL LABORATORY. A concrete testing laboratory that may have *branch* and *project laboratories*.

PROJECT LABORATORY. A temporary onsite concrete testing laboratory for a specific project under the direction of a *principal* or *branch laboratory*.

ACCREDITATION AUTHORITY. An entity such as the National Institute of Standards and Technology, the Cement and Concrete Reference Laboratory, the Army Corps of Engineers or another agency designated by the BBRS that field examines and evaluates *concrete testing laboratories*.

110.R1.3 Licensing. *Principal laboratories*, *branch laboratories* and *project laboratories* shall each be licensed by the BBRS in accordance with 780 CMR 110.R1. Each *laboratory* shall submit a standard application, available at www.mass.gov/dps, to the BBRS for approval demonstrating that its facilities, equipment, personnel and procedures meet the requirements of 780 CMR 110.R1. The application shall include a fee as set forth in 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*. A license and classification (as *principal*, *branch* or *project laboratory*) shall be issued for applications that meet the requirements of 780 CMR 110.R1. Licenses shall expire on December 31st of the year issued. The BBRS may review and revoke a license at any time if a *laboratory* fails to meet the requirements of 780 CMR 110.R1.

To renew a license, *laboratories* shall submit a fee as set forth in 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*, and a completed license renewal application, available at www.mass.gov/dps, to the BBRS each year 90-days before December 31st. The BBRS or its designee, upon review of the renewal application, shall renew the license or notify the *laboratory* of the reasons for refusal.

110.R1.3.1 Licensing Proof for Projects. *Laboratories* involved with projects having structures subject to "construction control" as required in Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00) shall submit an affidavit to the project owner for submittal to the *building official* at the time of the building permit application certifying that the *laboratory* and its personnel are licensed by BBRS. Affidavits shall also be submitted by any new or successor *laboratory* prior to engaging in work during the course of a project. A *laboratory* that plans to terminate services on a project must notify the *building official* and project owner in writing three days prior to terminating services.

110.R1.4 Licensing Qualification. *Principal* and *branch laboratories* shall be evaluated by an *accreditation authority* prior to applying for a license and at least every three years to ensure the *laboratory* equipment, personnel and procedures qualify for licensing. The *accreditation authority* shall notify the *laboratory* of the evaluation date and provide a report to the *laboratory* with all findings. Evaluation reports received by *laboratories* shall be submitted to BBRS within ten-days of receipt. Deficiencies shall be corrected within

110.R1: continued

30-days and certified by a *laboratory* affidavit sent to the BBRS on the standard affidavit form, available on the website www.mass.gov/dps,

110.R1.4.1 Standards. *Laboratory* equipment, personnel and procedures shall conform to the standards of ASTM E 329-07 and 780 CMR 110.R1 for testing of concrete and its constituent materials.

Exception: The following sections of ASTM E 329-07 shall not apply: Sections 9.3, 9.4, 14, 15, 16, 17, 18, 19, and 20.

110.R1.4.2 Equipment. Compression testing machines shall be calibrated and verified, with equipment traceable to the National Institute of Standards and Technology, at least annually or as required by the BBRS, and the results submitted to the BBRS.

110.R1.4.3 Personnel. Each *principal* and *branch laboratory* must have a director of testing services, lab supervisor and field supervisor. An individual that meets all three qualifications may fill more than one position at a *laboratory*, but may not fill positions concurrently at a separate *laboratory*. A *project laboratory* must have a full time lab supervisor. Each individual must submit credentials and qualifications under penalty of perjury with signature notarized. Individuals applying for certification in more than one category must file separate applications for each category. Credentials shall be filed within 30-days of employment. The director of testing shall notify the BBRS within seven days of any vacancy of any position. Any vacant position shall be filled within 30-days.

A director of testing shall be a fulltime employee of a *laboratory*, must be able to interpret the results of tests on concrete and concrete aggregates as stated in ASTM E 329-07, and shall be qualified in accordance with one of the following requirements:

1. A professional engineer registered in the Commonwealth of Massachusetts with at least five years of experience in responsible charge of work related to structural engineering, construction engineering or construction materials testing; or
2. A bachelor's degree in engineering from an accredited institution and an additional total of three years experience performing tests on concrete and concrete materials which shall include two years as a *laboratory* technician or supervisor; or
3. At least eight years experience including five years of experience as a lab technician or supervisor.

A lab supervisor shall have at least five years of experience performing tests on construction materials including concrete and concrete aggregates and be licensed as an ACI Class 1 Concrete Field Testing Technician.

A field supervisor shall have at least five years of experience performing tests on construction materials including concrete and be licensed as an ACI Class 1 Concrete Field Testing Technician.

All personnel shall be able to demonstrate their ability by oral or written exam to perform the tests and duties normally required in the manner stipulated by ASTM E 329 07.

110.R1.5 Revocation and Suspension. The BBRS may suspend or revoke the license of any *laboratory* found to be in noncompliance with 780 CMR 110.R1, the *International Building Code (IBC), 2009* with Massachusetts Amendments, or the standard of good practice.

Notice of suspension, revocation or refusal to renew a license shall be in writing with the reasons clearly stated, and served in accordance with the Chapter 1 of *International Building Code, 2009* with Massachusetts Amendments (780 CMR 1.00). Prior to issuance of a suspension, revocation or refusal to renew a license, written notice of such intent shall be served by the BBRS or its designee in accordance with Chapter 1 of the *International Building Code, 2009* with Massachusetts Amendments, (780 CMR 1.00). Within ten calendar days of receipt of such notice, the *laboratory* may request a conference before a three-member panel designated by the chairman of the BBRS. The panel shall hear facts and report such findings to the BBRS for its consideration and action.

Upon license suspension or revocation the *laboratory* shall immediately cease testing of concrete and concrete materials for structures subject to "construction control" as required in Chapter 1 of the *International Building Code, 2009* with Massachusetts Amendments (780 CMR 1.00). No action brought before the Building Code Appeals Board as specified in 780 CMR 110.R1 or in any court of competent jurisdiction shall stay this suspension or revocation unless the Building Code Appeals Board or court issue an order for a stay.

110.R1.6 Building Code Appeals Board. Any laboratory or individual aggrieved by the suspension or revocation of its license or by an interpretation, order, requirement, direction or failure to act under 780 CMR 110.R1 may appeal to the Building Code Appeals Board as provided in Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00). However, entry of an appeal shall not stay such revocation or suspension unless so ordered by the Building Code Appeals Board in a preliminary hearing conducted expressly for the purpose of a stay.

780 CMR 110.R2

CONCRETE FIELD TESTING TECHNICIAN LICENSING

(Note: 780 CMR 110.R2 is unique to Massachusetts)

110.R2.1 ADMINISTRATION

110.R2.1.1 Scope. The provisions of 780 CMR 110.R2 shall govern concrete field testing technician licensing.

110.R2.1.2 Definitions. Unless otherwise expressly stated in 780 CMR, the following terms, for the purpose of 780 CMR 110.R2, shall have the meaning indicated in 780 CMR 110.R2.1.2.

CONCRETE FIELD TESTING TECHNICIAN. A person issued a Grade 1 license by the American Concrete Institute (ACI) authorizing such person to test/inspect concrete.

TESTING AGENCY. An official *Local Sponsoring Group* of ACI.

110.R2.1.3 Licensing. All personnel engaged in field testing/inspection of concrete for use in buildings and structures subject to the construction control provisions of Chapter 1 of the *International Building Code (IBC) 2009* with Massachusetts Amendments (780 CMR 1.00) shall be licensed by ACI as a Concrete Field Testing Technician - Grade 1 in accordance with ACI's "Certification Policies for Concrete Field Testing Technician - Grade 1" and 780 CMR 110.R2.

110.R2.1.4 Application for Licensing. Applicants shall contact and follow the policies and procedures of the Testing Agency and ACI to be licensed in accordance with 780 CMR 110.R2.

110.R2.1.5 Examination. Applicants shall contact the Testing Agency regarding applications, fees and exam schedules. The exam includes a written and practical "hands-on" component.

110.R2.1.6 Notification of Examination and Examination Results. The testing agency provides the time and place for the examination. ACI provides exam results directly to the applicant.

110.R2.1.7 Fees. Application, testing and license fees are paid to the Testing Agency and/or ACI.

110.R2.1.8 Renewals. Licenses shall be renewed according to the policies of ACI.

NON-TEXT PAGE

780 CMR 110.R3

MANUFACTURED BUILDINGS, BUILDING COMPONENTS AND MOBILE HOMES

(Note: 780 CMR 110.R3 is unique to Massachusetts)

PART I—GENERAL

110.R3.1 ADMINISTRATION

110.R3.1.1 Title. The BBRS, Massachusetts Board of Fire Prevention Regulations, Massachusetts Board of State Examiners of Electricians, and the Massachusetts Board of State Examiners of Plumbers and Gas Fitters adopt the Rules and Regulations for Manufactured Buildings, Manufactured Building Components and Manufactured Homes as 780 CMR 110.R3.

110.R3.1.2 Definitions. Unless otherwise expressly stated in 780 CMR the following terms shall, for the purpose of 780 CMR 110.R3, have the meaning indicated in 780 CMR 110.R3.1.2.

APPROVAL. Approval by the State Board of Building Regulations and Standards (BBRS).

BUILDING SYSTEM. Plans, specifications and documentation for a system of manufactured buildings or for a type or a system of manufactured building components, which may include structural, electrical, mechanical, plumbing and fire protection systems and other systems affecting health and safety, including variations which are submitted as part of the building system.

CERTIFICATION. Any manufactured building, manufactured building component or manufactured home which meets the provisions of the applicable Codes and Rules and Regulations; and which has been labeled accordingly.

CODE. 780 CMR or Specialized Codes as defined.

DEALER OF MODULAR HOMES. (For purposes of this definition, a modular home is a single or multiple, single-family residential manufactured building.) Any individual, organization or firm engaged in the retail selling, or offering for sale, brokering, or distribution of modular homes, primarily to a person who in good faith, purchases or leases such home for purposes other than resale. Such individual, organization or firm shall be registered with the Board of Building Regulations and Standards in accordance with policies established therefore.

DEPARTMENT - DPS. The Department of Public Safety, Division of Inspections.

INSPECTION AGENCY. Independent agency, sometimes referred to as “third-party agency,” retained by the manufacturer and approved by BBRS to perform inspections and evaluations of building systems, compliance assurance programs, manufactured buildings, and manufactured building components.

INSTALLATION. The process of affixing, or assembling and affixing a manufactured building, manufactured building component or manufactured home on the building site, and connecting it to utilities, and/or to an existing building. Installation may also mean the connecting of two or more manufactured housing units designed and approved to be so connected for use as a dwelling.

INSTALLER OF MANUFACTURED BUILDINGS. An individual who, on the basis of training and experience, has been certified by a specific manufacturer of manufactured homes as competent to supervise the placement and connection required to install the manufactured homes of that manufacturer. Said certification by the manufacturer shall be in writing; additionally, the certified installer shall possess picture identification in the form of a driver's license or other picture identification acceptable to the building official in accordance with the *International Building Code 2009* with Massachusetts Amendments.

LABEL. An approved device or seal evidencing certification in accordance with the applicable Codes and Rules and Regulations.

110.R3: continued

LOCAL ENFORCEMENT AGENCY. A department or agency in a municipality charged with the enforcement of 780 CMR and appropriate specialized codes which include, but are not limited to, the Board of State Examiners of Plumbers and Gas Fitters regulations at 248 CMR and 527 CMR 12.00: *2008 Massachusetts Electrical Code* (Amendments).

MANUFACTURED BUILDING. Any manufactured building which has concealed elements, such as electrical, mechanical, plumbing, fire protection, insulation, and other systems affecting health and safety, and which is manufactured or assembled in accordance with 780 CMR and pertinent regulations, in manufacturing facilities, on or off the building site. Also, any manufactured building as defined above which does not have concealed elements, but which has been approved by the BBRS at the request of the manufacturer. "Manufactured building" does not mean "manufactured home".

MANUFACTURED BUILDING COMPONENT. Any manufactured subsystem, manufactured subassembly, or other system designed for use in or as part of a structure having concealed elements such as electrical, mechanical, plumbing and fire protection systems and other systems affecting health and safety.

MANUFACTURED HOMES (Housing). As defined in 24 CFR, Part 3280.2; a structure, transportable in one or more sections, which in the traveling mode, is eight body feet or more in width or forty body feet or more in length, or, when erected on site, is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained therein. Calculations used to determine the number of square feet in a structure will be based on the structure's exterior dimensions measured at the largest horizontal projections when erected on site. These dimensions will include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. (See 24 CFR, Part 3280.2 for a more detailed description of manufactured homes as defined by the Department of Housing and Urban Development.)

RECERTIFIED MANUFACTURED BUILDING. Any manufactured building as defined in 780 CMR 110.R3 that was previously designed and constructed to conform with requirements of a particular use group or groups for use at a site and that subsequently is to be relocated to a different site. Such buildings, also known as relocatable units, shall be inspected by the responsible third-party inspection agency and recertified in accordance with 780 CMR and 110.R3 as applicable to ensure compliance with the new use group or groups if such use group or groups has changed or to requirements of the original use group or groups if not changed prior to being set at the new location.

SPECIALIZED CODE. All building codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair or demolition promulgated by and under the authority of the various agencies which have been authorized from time to time by the General Court of the Commonwealth of Massachusetts. The specialized codes shall include, but not be limited to, the Board of State Examiners of Plumbers and Gas Fitters regulations at 248 CMR and 527 CMR 12.00: *2008 Massachusetts Electrical Code* (Amendments).

STATE ADMINISTRATIVE AGENCIES. Boards, commissions, departments or agencies authorized to promulgate, adopt and amend codes and rules and regulations relating to buildings and structures and parts thereof and limited to the BBRS, Massachusetts Board of Fire Prevention Regulations, Massachusetts State Examiners of Electricians, and the Massachusetts Board of State Examiners of Plumbers and Gas Fitters.

STATE ENFORCEMENT AGENCIES. Boards, commissions, departments or agencies authorized to enforce the provisions of the codes and rules and regulations which have been promulgated, adopted and amended and which relate to buildings or structures and parts thereof and limited to the Department of Public Safety, Massachusetts Board of State Examiners of Plumbers and Gas Fitters, and the Massachusetts State Examiners of Electricians.

110.R3: continued

110.R3.1.3 Scope.

1. 780 CMR 110.R3 shall govern the design, manufacture, handling, storage, transportation and installation of manufactured buildings, and manufactured building components intended for installation in Massachusetts and/or manufactured in Massachusetts for shipment to any other state in which such building, building components, or manufactured homes and the labels thereon are accepted.
2. The Federal Manufactured Home Construction and Safety Standards promulgated by the Department of Housing and Urban Development govern the design, manufacture, handling, storage and transportation of manufactured homes for installation in this state.
3. Subject to local zoning ordinances and by-laws, manufactured buildings, manufactured building components or manufactured homes may be sold for, delivered to, or installed on, building sites located in any jurisdiction of Massachusetts if such buildings, building components or manufactured homes have been approved and certified pursuant to the applicable Codes and 780 CMR 110.R3.

110.R3.1.4 Administration and Enforcement. The BBRS and the State Enforcement Agencies shall enforce all provisions of 780 CMR 110.R3. The State Enforcement Agencies and the Local Enforcement Agencies shall have the responsibility for evaluating building systems and performing inspections of manufactured buildings and manufactured building components to enforce compliance with 780 CMR 110.R3 and the applicable codes. The State Enforcement Agencies and the local enforcement agencies shall deem acceptable manufactured buildings, manufactured building components, building systems and compliance assurance programs labeled and certified by inspection agencies approved by the BBRS and those manufactured homes certified as in conformance with the Federal standards by the application of the applicable required HUD label.

110.R3.1.5 Authorization of Third-party Inspections. Upon recommendation of the State Enforcement Agencies, the BBRS may authorize inspection agencies, sometimes referred to as third party inspection agencies, to perform all or part of the inspection and certification of manufactured buildings and manufactured building components, building systems and compliance assurance programs, including either or both the issuance and the attachment of labels thereto. The BBRS may suspend or revoke such authorization for cause.

110.R3.1.6 Approvals and Compliance. Upon the recommendation of the State Enforcement Agencies, the BBRS may approve building systems and compliance assurance programs which comply with the codes, standards, specifications, requirements and 780 CMR 110.R3.

110.R3.1.7 Time of Manufacture. For purposes of 780 CMR 110.R3, a manufactured building, manufactured building component or manufactured home is deemed to be manufactured at such time as the label as described in 780 CMR 110.R3 is duly issued label is attached to it in accordance with the approved compliance assurance program.

110.R3.1.8 Retroactive Changes. No changes in the codes, standards, specifications and requirements of 780 CMR 110.R3 shall apply retroactively.

110.R3.1.9 Amendments. The State Administrative Agencies shall notify the BBRS, and the BBRS shall notify all interested parties including State Enforcement Agencies, inspection agencies, manufacturers with approved building systems, and local governmental jurisdictions of all amendments to 780 CMR 110.R3, and each manufacturer shall have no more than 180 days following the sending of notification to submit to the BBRS compliance assurance program revisions in order to comply with such amendments. Where imminent danger to life safety is involved, the State Administrative Agencies may require that immediate effect be given such amendments to the codes, standards, specifications and requirements so adopted.

110.R3.2 COMPLIANCE ASSURANCE PROGRAMS

110.R3.2.1 Approval. In order to obtain approval for manufactured buildings or manufactured building components a manufacturer shall submit a building system for evaluation to the BBRS for approvals in accordance with 780 CMR 110.R3.

110.R3: continued

110.R3.2.2 Suitability. Prior to a full evaluation, the State Enforcement Agencies shall determine that building systems and/or the application for approval of the compliance assurance program submitted to it are suitable for processing. In the event that the application is found to be unsuitable for processing, the applicant shall be notified in writing of such unsuitability and the basis thereof, within 30 days of the date the application is received by the BBRS. In such event, all but \$25.00 of the fee will be returned and the findings of unsuitability will be without prejudice. Any subsequent submission shall be treated as a new application.

110.R3.2.3 Requisites. The State Enforcement Agencies may require tests to determine whether a compliance assurance program meets the codes, standards and requirements of the evaluation of plans, specifications and documentation. The procedures used shall be reviewed and evaluated by the BBRS in accordance with 780 CMR 110.R3. The costs of such tests shall be borne by the applicant.

110.R3.2.4 Notification of Disapproval. In the event a compliance assurance program is disapproved by the BBRS, the BBRS shall notify the applicant with a written explanation of the reasons for such disapproval.

110.R3.2.5 Approval – Evidence. Approval of a compliance assurance program shall be evidenced by a letter of certification issued by the BBRS.

110.R3.2.6 Approval – Report. The State Enforcement Agencies shall prepare and the BBRS shall issue to the applicant a building system approval report which shall include any conditions imposed for its use.

110.R3.2.7 Approval – Variations. A building system and compliance assurance program or any amendment there to which has been approved, shall not be varied in any way without prior written authorization by the BBRS. All amendments shall be in writing and shall be made a part of the written record of the approval.

110.R3.2.8 Amendments – Proposed. Amendments to compliance assurance programs may be proposed by submitting to the BBRS for its approval, appropriate plans, specifications, or documentation showing the effect of the proposed amendment on each building system and the required fee.

110.R3.2.9 Compliance Assurance Program. A manufacturer shall obtain approval from the BBRS of a compliance assurance program for his building system. Buildings or building components shall be manufactured in accordance with an approved program in order to be certified. Compliance assurance programs shall be submitted to the BBRS for its approval in accordance with 780 CMR 110.R3.

110.R3.3 CERTIFICATION

Manufactured buildings or manufactured building components or manufactured homes, accepted by the State Enforcement Agencies and an inspection agency as having been manufactured according to an approved building system and an approved compliance assurance program, shall be certified by the BBRS upon the recommendation of the State Enforcement Agencies as complying with the requirements of the applicable codes and 780 CMR 110.R3. Certification shall be evidenced by the issuance of a label by the Board of Building Regulations and Standards and by attachment of the label to each certified manufactured building or manufactured building component (or groups of components).

110.R3.3.1 Manufacturer's Data Plate.

110.R3.3.1.1 Contents. The following information shall be placed directly or by reference on one or more permanent manufacturer's data plates in the vicinity of the electrical distribution panel, or in some other designated location acceptable to the State Enforcement Agencies, on the manufactured building or manufactured building component where it will be readily accessible for inspection.

1. Manufacturer's name and address;
2. Serial number of the unit;
3. Label serial number;
4. Name and date of applicable building, plumbing, gas and electrical codes and issue of their accumulative supplements complied with;
5. Model designation and name of manufacturer of major factory-installed appliances;
6. Identification of permissible type of gas for appliance and directions for water and drain connection;

110.R3: continued

7. Snow, wind, seismic and other live loads;
8. Electrical ratings - instructions and warnings on voltage;
9. Special conditions or limitations on use of the units, including unsuitability for areas in which specified environmental conditions prevail;
10. Methods of assembly or joining multiple units;
11. Type of construction, including fire rating, occupancy class, and interior finish flame spread class;
12. Building height and story limitation;
13. Floor area; and
14. Minimum side yard requirements for fire rating.

If, in the opinion of the State Administrative Agencies, the shape or size of a building component is such that this information cannot be attached to it permanently, the information may be placed in a manual crated with the component or on a tag attached to the crate in which the component is shipped, if the information is not such that the future occupant of the building should know it. If the occupant will need to know the information, it shall be contained in a manual which shall be presented to the occupant upon transfer of possession. If life safety is involved, the item in question shall be plainly labeled.

110.R3.3.2 Labels. Each manufactured building or manufactured building component which is certified pursuant to the applicable codes and 780 CMR 110.R3, shall have permanently attached, in a visible location as shown on the approved building system, an approved label which cannot be removed therefrom without destroying such label. Said label shall be made part of the permanent record for the manufactured building or manufactured building component, copies of which shall be retained by the manufacturer, the BBRS and the municipal and/or state building department where the manufactured building product is installed. Manufactured building that are to be used as a re-locatable unit, shall be issued a new label upon submission of a new Third Party Inspection Agency Compliance Report in attestation that the re-locatable unit has been inspected and meets the requirements of all applicable Massachusetts codes and requirements of 780 CMR 110.R3.

110.R3.3.2.1 Contents. An approved label shall bear the following information.

1. The statement "This label certifies that this building (or building component) has been manufactured in accordance with an approved building system and compliance assurance program which has been approved by the Commonwealth of Massachusetts Board of Building Regulations and Standards. Said manufactured building or manufactured building component has been inspected by

_____;
Name of Third-Party Inspection Agency

_____;
Name of Third-Party Inspector

- a. Label serial number.
- b. Building system approval number.
- c. Manufacturer's serial number.
- d. The words "See data plate located on."
- e. Date of manufacture.

At the direction of the BBRS labels and data plates may be limited in size and content for components whose shape and size does not permit the full information to be placed thereon.

110.R3.3.2.2 Issuance of Labels. The approved label shall be issued by the BBRS in accordance with the following.

1. If the BBRS delegated the issuance of labels to an inspection agency, the agency shall be required to obtain approval from the BBRS for the manner in which they are handled;
2. Labels must be serially numbered;
3. A manufacturer's compliance assurance program submitted in accordance with 780 CMR 110.R3 shall include requirements for issuance, possession of, attachment of, and accounting for all labels to assure that labels are attached only to manufactured buildings, manufactured building components, or manufactured homes manufactured pursuant to an approved building system and inspected pursuant to an approved compliance assurance program; and

110.R3: continued

4. Upon request of the inspection agency, the BBRS may determine that the manufacturer's record of compliance is such that the inspection agency need not maintain an inspector in a given plant at all times, inspection agency may entrust labels to the custody of one or more employees of the manufacturer, who shall be charged with controlling the use of the such labels. Such employees shall not be given custody of more labels than are necessary. If the conditions of custody are violated, the BBRS or an inspection agency shall immediately regain possession of all labels that have not been applied to the manufactured buildings or manufactured building components and shall take such further action with respect to future labeling, as it may deem necessary to assure compliance with the applicable codes and 780 CMR 110.R3.

110.R3.3.3 Records of Labels. Permanent records shall be kept of the handling of all labels, indicating at least how many labels have been applied issued to manufacturers for their to manufactured buildings or manufactured building components (or groups of components), and which labels have been applied assigned to which buildings or building components, the disposition of any damaged or rejected labels, and the location and custody of all unused labels. Such records shall be maintained by the manufacturer or by the inspection agency and a copy of such records covering attachment of each label shall be sent to the BBRS on the tenth of each month and the BBRS shall forward all such records to the State Enforcement Agencies.

110.R3.3.4 Attachment of Labels. The inspection agency shall attach in numerical sequence labels to manufactured buildings or manufactured building components manufactured in accordance with an approved building system and meeting the requirements of an approved compliance assurance program. Manufacturers shall attach labels in the same manner to manufactured buildings or building components manufactured in accordance with an approved building system and meeting the requirements of an approved compliance assurance program. Manufacturers shall attach labels in the same manner to manufactured buildings or building components manufactured in accordance with an approved compliance assurance program, if custody of the labels has been entrusted to them in accordance with 780 CMR 110.R3.

110.R3.3.5 Suspension and Revocation. The BBRS may suspend or revoke, or cause to be suspended or revoked, the certification of any manufactured building or manufactured building component which the State Enforcement Agencies or an inspection agency finds not to comply with the applicable codes or 780 CMR 110.R3, or which has been manufactured pursuant to a building system or a compliance assurance program for which approval has been suspended or revoked, or which has not been manufactured in accordance with the approved compliance assurance program. The State Enforcement Agencies shall withhold or void a label or shall remove or cause to be removed, labels from any such manufactured building, manufactured building component or manufactured home until it is brought into compliance with the applicable codes and 780 CMR 110.R3. Notice of suspension or revocation of certification shall be in writing with the reasons for suspension or revocation clearly set forth.

1. Upon suspension or revocation of the approval of any building system or compliance assurance program, no further labels shall be issued, assigned and/or attached to any manufactured buildings or manufactured building components manufactured pursuant to the building system or compliance assurance program with respect to which the approval was suspended or revoked. Upon termination of such suspension or revocation, labels may again be issued and/or assigned be attached to the manufactured building or manufactured building components manufactured after the date approval was reinstated. Should any building or building component have been manufactured during the period of suspension or revocation, it shall not be issued a label unless the State Enforcement Agencies or inspection agency have inspected such building or building component and is satisfied that all requirements for certification have been met. If the State Enforcement Agency acts under 780 CMR 110.R3.3.5, it must notify the inspection agency.

2. The manufacturer shall return all labels allocated for a manufactured building or manufactured building component to the BBRS no later than 30 days from the effective date of any suspension or revocation of the State Enforcement Agencies or inspection agency, of the building system or compliance assurance program pursuant to which the manufactured building or manufactured building component is being manufactured. The manufacturer shall also return to the BBRS all labels which it determines, for any reason, are no longer needed.

110.R3: continued

110.R3.3.6 Variations of Certified Units. Manufactured buildings, manufactured building components or manufactured homes certified and labeled pursuant to the applicable codes and 780 CMR 110.R3 shall not be varied in any way prior to the issuance of a certificate of occupancy without resubmission to the BBRS for its approval of the variation and of the unit which includes the variation. The State Enforcement Agencies, Local Enforcement Agencies or an inspection agency shall inspect the manufactured building, manufactured building component or manufactured home wherever it is located and such inspection may include such tests or destructive or nondestructive disassembly as the State Enforcement Agencies or an inspection agency deems necessary to assure compliance with the applicable Codes and 780 CMR 110.R3. Local Enforcement Agencies may be designated by the BBRS or State Enforcement Agencies as inspection agencies for such purposes.

110.R3.4 INSPECTION BY THE STATE ENFORCEMENT AGENCIES OR THEIR AGENTS

The State Enforcement Agencies shall make, or cause to be made, such inspections of the entire processing of manufacturing, certifying, handling, storing and transporting of manufactured buildings or manufactured building components produced pursuant to approved building systems as they deem necessary.

110.R3.4.1 Inspection of Facilities. As part of the process of evaluating building systems and compliance assurance programs, the State Enforcement Agencies shall inspect, or cause to be inspected, the manufacturing facilities in which the buildings or building components are to be manufactured.

110.R3.4.2 Inspection According to Compliance Assurance Programs. The State Enforcement Agencies or an inspection agency shall make such inspections as may be required by an approved compliance assurance program, or as may be deemed necessary by the State Enforcement Agencies.

110.R3.4.3 Inspection of Damaged Components. Prior to the issuance of a certificate of occupancy, the State Enforcement Agencies or an inspection agency shall inspect, or cause to be inspected, certified manufactured buildings or manufactured building components which it determines to have been sufficiently damaged after certification to warrant such inspection and to take such action with regard to such buildings or building components as is authorized hereof, or as is otherwise necessary to eliminate dangerous conditions. The local enforcement agencies may be designated by the BBRS or the State Enforcement Agencies as the inspection agency.

110.R3.4.3.1 Repairing Damaged Components. The State Enforcement Agencies or an inspection agency shall require manufactured buildings or manufactured building components which are so damaged as to no longer comply with the applicable Codes and 780 CMR 110.R3 to be repaired and made to comply within a reasonable time; or if they are so damaged that they cannot be brought into compliance, the State Enforcement Agencies or inspection agency shall order that the labels be removed voided for from such buildings, building components or manufactured homes. A report under 780 CMR 110.R3.4 shall be filed with the inspection agency, BBRS and State Enforcement Agency.

110.R3.4.3.2 Irreparably Damaged Components. Irreparably damaged buildings or building components shall be disposed of by the manufacturer.

110.R3.4.4 Monitoring Inspection Agency. The State Enforcement Agencies or their designated agents shall examine each approved inspection agency, at any reasonable time, and without prior announcement, in order to monitor the reliability of each agency and of its monitoring of each compliance assurance program. Each such examination shall investigate the adequacy of all procedures used by the agency in monitoring compliance assurance programs including inspection, tests, production methods, process controls, operator performance, materials, receipts, storage and handling, workmanship standards, records and all other activities which implement the compliance assurance program in the manufacturing facility, during transport, on-site, and at critical subcontractors' facilities. The results of such examinations shall be filed with the office of the BBRS. Copies of such reports shall be sent to the inspection agency and the State Enforcement Agencies. Inspection agencies shall be specifically notified by the BBRS of any deficiencies and of the manner and time by which such deficiencies must be eliminated. If deemed necessary by the State Enforcement Agencies, an inspection agency's approval may be suspended or revoked by the BBRS as provided.

110.R3.4.4.1 Prior to Approval. Such examinations may also be conducted before approving an inspection agency.

110.R3: continued

110.R3.4.5 Inspection by Disassembly. No inspection entailing disassembly, damage to or destruction of certified manufactured buildings, manufactured building components or manufactured homes shall be conducted except to implement 780 CMR 110.R3.

110.R3.5 LOCAL ENFORCEMENT AGENCY PROCEDURES AND INSPECTIONS

110.R3.5.1 Issuance of Building Permits. Upon application and in conformity with the provisions of 780 CMR, the building official shall issue building permits for installation of certified manufactured buildings, manufactured building components or manufactured housing.

110.R3.5.1.1 Licensed Construction Supervisors and Certified Installers. A construction supervisor, duly licensed in accordance with 780 CMR 110.R5, shall, in accordance with Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00), act as the agent for the owner for the purpose of applying for and obtaining any and all building permits required for the field erection of all one or two family manufactured dwellings subject to the provisions of 780 CMR and 780 CMR 110.R3 as applicable. As part of the building permit application process, the licensed construction supervisor shall submit to the building official, in writing, the name of the installer, who shall be duly certified by the manufacturer to install said manufacturer's product, and is identified as a *certified installer of manufactured buildings* (certified installer) by said manufacturer. The certified installer shall be responsible for the safe and proper placement and connection of the manufactured home units in accordance with 780 CMR, 780 CMR 110.R3 and the specialized codes as listed in Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00). The licensed construction supervisor shall be responsible for the construction of the foundation system, and all pertinent site work, in accordance with 780 CMR and 780 CMR 110.R3. The licensed construction supervisor shall provide at least 48 hours notice to the BBRS and the local building official before the placement and connection of such units shall begin. An application to local enforcement agencies for an appropriate permit shall, in addition to any other requirements, contain the following information.

110.R3.5.1.2 Permit Application–Statement of Content. A statement that the work to be performed under such permit is to include the installation of a certified manufactured building, manufactured building component or manufactured home in accordance with the provisions of the applicable codes, the statement is to be signed by the applicant or his agent, with the appropriate address.

110.R3.5.1.3 Permit Application – Building System. A true copy of the approved building system with respect to which the manufactured building or manufactured building component was manufactured or is to be manufactured, where one has not previously been furnished to that local enforcement agency.

110.R3.5.1.4 Permit Application – Building System Approval. A copy of the Building System Report, as approved by the BBRS, where it has not previously been furnished to the Local Enforcement Agency.

110.R3.5.2 Inspection of Site Preparation and Service Connections. Appropriate local enforcement agencies shall inspect site preparation work including foundations, not within the scope of the approval and certification, and the structural, mechanical, plumbing and electrical connections among units, for compliance with applicable law, rules and regulations.

110.R3.5.3 Compliance with Instructions. Appropriate local enforcement agencies shall inspect all manufactured buildings, manufactured building components or manufactured homes upon, or promptly after, installation at the building site to determine whether all instructions in the Building System Approval Report or conditions listed on the manufacturer's data plate have been followed. This may include tests for tightness of plumbing and mechanical systems, and for malfunctions in the electrical system and a visual inspection for obvious nonconformity with the approved building system.

110.R3.5.3.1 Disassembly Prohibited. Unauthorized destructive disassembly of certified buildings and building components and mobile homes shall not be performed in order to conduct such tests or inspections, except as provided in 780 CMR 110.R3.4.3, nor shall there be imposed standards or test criteria different from those adopted by the State Enforcement Agencies or specified in the Building System Approval Report, or the "HUD's" Manufactured Home Construction and Safety Standards.

110.R3.5.3.2 Opening Panels. Nondestructive disassembly may be performed only to the extent of opening access panels and cover plates.

110.R3: continued

110.R3.5.4 Noncomplying New Units. Local enforcement agencies shall report to the BBRS in accordance with 780 CMR 110.R3.5.6 any noncomplying manufactured buildings and building components.

110.R3.5.5 Certificates of Occupancy. Appropriate local inspectors shall issue certificates of occupancy for certified manufactured buildings and manufactured homes containing certified building components which otherwise comply with all the applicable codes, after they have been installed and inspected pursuant to the applicable codes and 780 CMR 110.R3, provided that any manufactured building or manufactured building component found not to comply with the Building System Approval Report or any manufactured home found not to comply with "HUD's" Manufactured Home Construction and Safety Standards shall be brought into compliance before such certificate of occupancy shall be issued.

110.R3.5.6 Reporting of Violations to Department of Public Safety. When any local enforcement agency is making an inspection and finds violations or suspected violations, it shall report the details of the violations in writing to the BBRS. Where violations are hazardous to occupants, a certificate of occupancy shall not be issued and the building shall not be occupied before such hazards are corrected. If the violations are not hazardous, a temporary certificate of occupancy may be issued.

110.R3.6 FEES

110.R3.6.1 Deposit for Application to the BBRS. A deposit shall be required upon application to the BBRS to perform any of the functions in 780 CMR 110.R3.

110.R3.6.2 Establishment of Fees. Any and all fees charged for licenses, examinations, renewals, and registrations shall be determined by the Commonwealth and enforced by the BBRS. Fees shall be established from time to time as necessary, and shall be paid in accordance with 801 CMR 4.02.

110.R3.7 NOTIFICATION OF CHANGES IN NAME, ADDRESS, OWNERSHIP OR LOCATION

110.R3.7.1 Notification by Manufacturers. Manufacturers shall notify the BBRS in writing within ten days of any of the following occurrences:

1. The corporate name is changed;
2. The main address of the company is changed;
3. There is a change in 25% or more of the ownership interest of the company within a 12-month period;
4. The location of any manufacturing facility is changed;
5. A new manufacturing facility is established; or
6. There are changes in principal officers of the firm.

The BBRS shall notify the State Administrative Agencies of such occurrences.

110.R3.7.2 Notification by Inspection Agencies. Inspection agencies shall notify the BBRS in writing within ten days of any of the following occurrences.

1. The company name is changed;
 2. The main address of the company is changed;
 3. There is a change in 25% or more of the ownership interest or control of the company within a 12-month period;
 4. The location of any testing facility is changed;
 5. A new testing facility is established; or
 6. There are changes in principal officers and key supervisory and responsible personnel of the firm.
- The BBRS shall notify the State Administrative Agencies of such occurrences.

110.R3.8 PROPRIETARY INFORMATION

All information relating to building systems and compliance assurance programs which the manufacturer or other party considers proprietary shall be so designated by him at the time of its submission, and shall be so held by the State Enforcement Agencies and State Administrative Agencies, except as the State Administrative Agencies determine in each case, that disclosure is necessary to carry out the purposes of the applicable codes and 780 CMR 110.R3.

110.R3: continued

PART II—REQUIREMENTS FOR SUBMISSION OF BUILDING SYSTEMS AND COMPLIANCE ASSURANCE PROGRAMS

110.R3.9 BUILDING SYSTEMS

Building systems shall meet the requirements set forth below to be evaluated for compliance with the standards, specifications and requirements adopted by the State Administrative Agencies.

110.R3.9.1 General Requirements.

110.R3.9.1.1 Plans, Specifications and Documentation. Building systems, including all plans, specifications and other documentation, shall be submitted in quadruplicate to the BBRS who shall act as the depository and disbursing agent for all such items. The BBRS shall forward to the appropriate State Enforcement Agencies plans, specifications and documentation for their recommendations.

110.R3.9.1.2 Form and Fees. Building systems shall be submitted in the form prescribed by the BBRS and shall be accompanied by all required fees.

110.R3.9.1.3 Identification. All documents submitted with the application shall be identified to indicate the manufacturer's name, office address and address of the manufacturing facility.

110.R3.9.1.4 Plans Showing Elements. Plans shall be submitted showing all elements relating to specific systems on properly identifiable sheets.

110.R3.9.1.5 Application—Approved Registered Design Professional. Each building system application shall bear the signature and seal of a registered design professional certifying that the building system complies with the applicable codes and standards.

110.R3.9.1.6 On-site Work Identified. All work to be performed on-site, including connection of all systems, equipment and appliances, shall be identified and distinguished from work to be performed in the manufacturing facility.

110.R3.9.1.7 Space for State Administrative Agencies Approval Stamp. A three inch × four inch blank rectangular space shall be provided on all sheets of plans near the title box for the BBRS's stamp of approval.

110.R3.9.1.8 Material Grade and Quality. Grade, quality and identification of all material shall be specified.

110.R3.9.1.9 Calculations and Test Reports. Design calculations and test reports shall be specified.

110.R3.9.1.9.1 Drawings to Scale. Drawings shall be drawn to scale and be legible.

110.R3.9.1.9.2 Label and Data Plate Location. Drawings shall indicate the location of the data plate.

110.R3.9.1.9.3 Drawings Dated and Identified. Drawings shall be dated and identified. The number of sheets in each set shall be indicated.

110.R3.9.2 Required Construction Details. Building systems for manufactured buildings shall provide or show, but not be limited to, the details listed below including the method of their testing or evaluation, or both. These requirements shall apply to the building systems for building components only to the extent deemed necessary by the State Enforcement Agencies to permit a proper evaluation of the building component.

110.R3.9.2.1 General.

1. Details and methods of installation of manufactured buildings or manufactured building components on foundations and/or to each other.
2. All exterior elevations.
3. Cross sections as necessary to identify major building components.
4. Details of flashing, such as at openings and at penetrations through roofs and subcomponent connections. Indicate flashing material and gauge to be used.
5. Attic access and attic ventilation.
6. Exterior wall, roof and soffit material as well as finish.

110.R3: continued

7. Interior wall and ceiling finish material.
8. Fire separation walls.
9. Sizes, locations and types of doors, windows and fire/smoke detectors.
10. Recommended foundation plans, vents and underfloor access.

110.R3.9.2.2 Building Classification.

1. Occupancy or use.
2. Area, height, and number of stories.
3. Type of construction.
4. Fireresistance ratings.

110.R3.9.2.3 Space and Fire Safety.

1. Details of fire resistance rated assemblies for all stairway enclosures, doors, walls, floors, ceilings, partitions, columns, roof and shaft enclosures.
2. Detail of Fire Protection Systems.
3. Details as to width of all aisles, exits, corridors, passageways and stairway enclosures.
4. Toxicity and flame spread classification of finished materials.

110.R3.9.2.4 Structural Detail Requirements.

1. Engineer's calculations of structural members, where appropriate.
2. Structural and framing details of all floors, roof and walls.
3. Details and stress diagrams of roof trusses.
4. Details of reinforcing steel.
5. Complete loading schedule.
6. Column loads and column schedule.
7. Lintel schedule.
8. Size, spacing and details of all structural elements.
9. Grade or quality of all structural elements (lumber, steel, *etc.*).
10. Elevation of structural elements, walls or sections thereof, providing resistance to vertical loads or lateral forces.
11. Complete details of all structural connections.

110.R3.9.2.5 Mechanical Detail Requirements.

1. Location of all equipment and appliances. Indicate equipment and appliances listed or labeled by approved agencies.
2. Heat loss and heat gain calculations.
3. Manufacturer's name, make, model, number, BTU, input and output rating of all equipment and appliances, as appropriate, or the equal thereof.
4. Duct and register locations, sizes, and materials.
5. Clearances from combustible material or surfaces for all ducts, flues and chimneys.
6. Method of providing required combustion air and return air.
7. Location of flues, vents and chimneys and clearances from air intakes and other vents and flues.
8. Details regarding dampers in ducts penetrating fire separations.
9. Complete drawings of fire sprinkler system, standpipe system or smoke/fire alarm system as required.
10. Detail of elevator or escalator system, including method of emergency operation.
11. Duct and piping insulation thickness.
12. Ventilation air calculations.

110.R3.9.2.6 Plumbing Detail Requirements.

1. Plan or schematic drawing of the plumbing layout, including but not limited to, size of piping, fitting, traps and vents, cleanouts and valves, gas, water, and drainage system.
2. Plumbing materials, and location of all equipment and appliances to be used. Indicate fixture unit capacity of system(s) and the make, model, and rating/capacity of equipment and appliances. Indicate equipment and appliances listed or labeled by approved agencies.
3. Make and model of safety controls (such as for water heaters), their location, and whether listed or labeled by approved agencies.
4. How piping is to be supported and intervals of support.
5. Location of vents above roofs and required clearances, including but not limited to clearances from air intakes, other vents and flues.
6. Methods of testing.

110.R3: continued

110.R3.9.2.7 Electrical Detail Requirements.

1. Plan of service equipment, including service entrance, conductors, service raceway and clearances above ground and above structures.
2. Method and detail for grounding service equipment.
3. Single line diagram of the entire electrical installation.
4. Load calculations for service and feeders.
5. Sizes of all feeders and branch circuits.
6. Size, rating and location of main disconnect/overcurrent protective devices.
7. Method of interconnection between manufactured buildings or manufactured building components and location of connections.
8. Location of all outlets and junction boxes.
9. Method of mounting fixtures and wiring installations.
10. Lighting power calculations.

110.R3.10 COMPLIANCE ASSURANCE PROGRAMS FOR MANUFACTURED BUILDINGS AND MANUFACTURED BUILDING COMPONENTS

Compliance assurance programs shall be approved if they meet the requirements set forth in 780 CMR 110.R3.10. It is the manufacturer's responsibility to execute every aspect of this program. The manufacturer shall continue to be responsible for all corrective actions required and the contractual relationship between the manufacturer and the inspection agency shall not diminish such responsibility. The manufacturer shall cooperate with the inspection agency by providing the inspection agency with all necessary reports, information, documents, records, facilities, equipment, samples and other assistance for assuring compliance. The manufacturer's compliance assurance program shall be submitted to the BBRS in the form of a compliance assurance manual which shall contain complete documentation of all compliance assurance activities of both the manufacturer and the inspection agency. The manual shall be comprehensively indexed, and shall treat the material listed here in detail, as follows.

110.R3.10.1 Organization Requirements.

1. A procedure for periodic revision of the manual;
2. An organizational structure for implementing and maintaining the compliance assurance program and its functional relationship to other elements of the organization structure of the manufacturer, which structure shall provide for independence from the production department; Company officers and employees in charge of the compliance assurances program must be identified, and their training and qualifications specified;
3. A uniform system of audit (in-depth analysis of program effectiveness and means to identify deficiencies) to monitor program performance periodically;
4. Complete and reliable records of manufacturing and site operations, if any (suitable means of storage, preservation and accessibility of copies of forms to be utilized shall be included);
5. A system to control changes in production or inspection procedures;
6. A system to assure that working drawings and specifications, working instructions and standards, procurement documents, *etc.* conform to the approved building system;
7. A serial number system for buildings or building components; and
8. The method of safekeeping, handling and attaching labels and identification of those employees responsible therefor.

110.R3.10.2 Materials Control.

1. Procedure to assure effective control over procurement sources to ensure that materials, supplies and other items used in production and site operations, if any, conform to the approved plans, specifications and quality requirements;
2. Procedures for inspection of materials, supplies and other items at the point of receipt;
3. Method of protection of materials, supplies and other items against deterioration prior to their incorporation in the certified buildings or building component; and
4. Provision for disposal of rejected materials, supplies and other items.

110.R3.10.3 Production Control.

1. Procedures for timely remedial and preventive measures to assure product quality;
2. Provision, maintenance and use of testing and inspection;
3. Provision for frequency of sampling inspections;

110.R3: continued

4. Provision of necessary authority to reject defective work and carry out compliance assurance functions, notwithstanding any conflict with production department goals and needs;
5. A schematic of the manufacturing operation showing the location of inspection stations, and "hold" points for mandatory inspection characteristics;
6. Inspection and test procedures, including accept/reject criteria and mandatory inspection characteristics;
7. Standards of workmanship; and
8. Provision of disposal of rejects.

110.R3.10.4 Finished Product Control.

1. Procedure for final inspection of all manufactured buildings or manufactured building components before shipment to the site or storage point, including identification and labeling handling;
2. Procedures for handling and storing all finished manufactured buildings or manufactured building components, both at the manufacturing plant or other storage point and after delivery to the building site;
3. Procedures for packing, packaging and shipping operations and related inspections; and
4. Procedures for transportation, including all measures to protect against damage while in transit, and setting forth the modes of transportation to be utilized and the carrying equipment and procedures.

110.R3.10.5 Installation Control.

1. Installation procedures including component placement, equipment and procedures, field erection and finishing work, utility connection instructions and all appropriate on-site inspection criteria and test descriptions; and
2. Organizational provisions for field repair and disposal of rejects.

110.R3.10.6 Permission for Inspection. The manufacturer shall provide the BBRS with written permission, signed and notarized, for the State Enforcement Agencies to inspect his manufacturing facilities, his products, and building sites under his control at any reasonable time without prior announcement.

110.R3.10.7 Inspections by the State Enforcement Agencies. The Compliance Assurance Manual shall contain detailed plans for inspections by the State Enforcement Agencies or inspection agency.

PART III—APPROVAL OF INSPECTION AGENCIES

110.R3.11 REQUIREMENTS FOR SUBMISSION

An inspection agency seeking approval shall submit a quadruplicate application to the BBRS which shall include the items listed in 780 CMR 110.R3.1 1.

110.R3.11.1 Articles of Incorporation. The original Articles of Incorporation of the agency and all subsequent amendments, as filed in the State of Incorporation.

110.R3.11.2 Bylaws. The bylaws of the organization, if any.

110.R3.11.3 Business Affiliations of Members. The names, addresses and business affiliations of all members of the Board of Directors and of top management personnel.

110.R3.11.4 Stock. Individual interests representing more than 10% of the outstanding ownership reflecting the financial interest of the agency's Board of Directors and top management personnel.

110.R3.11.5 Certifications. Certification by the agency that:

1. Its Board of Directors, as a body, and its technical personnel, as individuals, can exercise independence of judgment; and
2. Its activities pursuant hereto will result in no financial benefit to the agency via stock ownership, or other financial interests in any producer, supplier or vendor of products involved, other than through standard published fees for services rendered.

110.R3.11.6 Experience of Directors. Names, years of experience, state in which professionally registered and other qualifications of the directors of inspection or evaluation programs.

110.R3.11.7 Experience of Employees. Names and years of experience of employees practicing in the following disciplines. architecture, structural engineering, mechanical engineering, electrical engineering, fire protection and other branches of engineering; the state in which each is registered and the service each performs.

110.R3: continued

110.R3.11.8 Organization Chart. An organization chart showing management and supervisory persons including the number of graduate engineers and architects, and the names of all consulting engineers or architects, designating which are full-time and which are part-time employees.

110.R3.11.9 Number and Location of Personnel. Number and location of factory inspectors, supervisors, and other technicians, including evaluators of factory inspectors and the qualifications of each specialized group, including records of work experience, licenses held and other pertinent qualifications; description of types of work each group and each technician is expected to perform and the qualifications of each group and each technician to perform the work assigned.

110.R3.11.10 Employees Training Programs. An outline of the training program, if any, of the agency to assure that all inspectors, evaluators and other technicians are properly trained to do each job assigned to them.

110.R3.11.11 Employee Supervision. An outline of the general procedures for supervision of inspectors and evaluators, including checking and evaluation of their work.

110.R3.11.12 Non-employees Relationships. All engineers, technicians and other personnel who will perform services for the organization but who are not employees of the organization, and the supervisory and other relationships which each will have to the agency.

110.R3.11.13 Products Evaluated. Type of products, components, equipment, structures and other items which the organization has evaluated, tested or inspected and the number of years of experience the organization has had with each, and the type of codes, standards, specifications and requirements with respect to which the organization has had experience in providing evaluation, inspection or testing services, and the number of years experience with each.

110.R3.11.14 Frequency Capability. Description of the frequency with which the agency is capable of performing inspections or evaluations.

110.R3.11.15 State approved in. List of the states in which the agency is now approved to inspect or evaluate manufactured buildings or manufactured building components or parts thereof for compliance with approved building systems.

110.R3.12 PROCEDURES FOR APPROVING INSPECTION AGENCIES

110.R3.12.1 Qualifications. Upon the recommendation of the State Enforcement Agencies, the BBRS may approve inspection agencies which meet the requirements of the applicable codes and 780 CMR 110.R3 and which the State Administrative Agencies find otherwise qualified to perform the functions proposed to be delegated to them.

110.R3.12.2 Suitability of Application. Prior to a full evaluation of an application for approval, the BBRS shall determine whether such application is unsuitable for processing. In the event the application is found to be unsuitable for processing, the applicant shall be notified in writing of such unsuitability and the basis thereof within 30 days of the date of the application is received by the BBRS. In such event, all but \$25.00 of the fee will be returned, and the rulings of unsuitability shall be without prejudice. Any subsequent submission shall be treated as a new application.

110.R3.12.3 Approvals. In the event of approval of the BBRS, an inspection agency shall be notified by a letter from the BBRS indicating such approval and stating specifically the functions which the applicant has been approved to perform. Such approval shall not constitute the actual delegation of such functions.

110.R3.13 SUSPENSION AND REVOCATION

110.R3.13.1 Grounds. The BBRS may suspend or revoke its approval of any inspection agency if the approval was issued in error; was issued on the basis of incorrect information; was issued in violation of any of the applicable Codes or 780 CMR 110.R3; if the inspection agency violates any of the applicable Codes or 780 CMR 110.R3, if examination discloses that the agency failed to perform properly; or for such other cause as may be deemed sufficient by the State Enforcement Agencies to warrant such action.

110.R3.13.2 Procedures.

110.R3: continued

110.R3.13.2.1 General. If the BBRS suspends or revokes the approval of an inspection agency, the inspection agency shall be given notice in writing from the BBRS of the suspension or revocation with the reasons therefore set forth therein. Manufacturers being evaluated or inspected by such agencies, all local enforcement agencies within this State, and the State Enforcement Agencies shall also be notified in writing of such suspension or revocation. Such notices shall contain instructions to the manufacturer and to the local enforcement agency as to the procedures to be followed regarding manufactured buildings or manufactured building components previously certified by an agency whose approval has been suspended or revoked.

110.R3.13.2.2 Records. An inspection agency whose approval has been suspended or revoked shall within 90 days of the suspension or revocation deliver to the custody of the BBRS the originals of all records required to be maintained during the course of the inspection agency's operations pursuant to the applicable codes and 780 CMR 110.R3.0.

110.R3.13.2.3 Labels. An inspection agency for which approval has been suspended or revoked shall within 90 days of the suspension or revocation deliver to the custody of the BBRS all labels in the agency's possession, under its control, or for which it is responsible pursuant to the applicable codes and 780 CMR 1.

PART IV—APPEALS

110.R3.14 HEARINGS

All hearings shall comply with applicable sections of the applicable codes and the Rules and Regulations established for the purpose of appeal.

NON-TEXT PAGE

780 CMR 110.R4

LICENSING NATIVE LUMBER PRODUCERS*(Note: 780 CMR 110.R4 is unique to Massachusetts)***110.R4.1 ADMINISTRATION**

110.R4.1.1 Scope. The provisions of 780 CMR 110.R4 shall govern the licensing of native lumber producers.

110.R4.1.2 Definitions. The following words and terms shall, for the purposes of 780 CMR 110.R4 and as used elsewhere in 780 CMR, have the meaning indicated in 780 CMR 110.R4.1.2.

BBRS. Board of Building Regulations and Standards.

NATIVE LUMBER. Native lumber is wood processed in Massachusetts by a mill registered in accordance with the regulations (780 CMR) of the BBRS. Such wood is ungraded but is stamped or certified in accordance with Chapter 23 of the *International Building Code 2009* with the Massachusetts Amendments (780 CMR 23.00). Native lumber shall be restricted to use in one-and two-story dwellings, barns, sheds, agricultural and accessory buildings and structures and other uses as permitted by Chapter 23 of the *International Building Code 2009* with the Massachusetts Amendments (780 CMR 23.00).

NATIVE LUMBER PRODUCERS. Persons or corporations in the business of milling wood into native lumber within Massachusetts.

PERSON. Individual, partnership, corporation, trust, joint venture, etc.

110.R4.1.3 Registration. No person shall produce native lumber for use in buildings or structures within Massachusetts unless registered by the BBRS.

110.R4.1.4 Application. Native lumber producers shall apply and furnish qualifications satisfactory to the BBRS in accordance with 780 CMR 110.R4 and qualification requirements provided by the BBRS with the application form.

110.R4.1.5 Registration Fee. Applications shall be accompanied by a registration fee in accordance with 801 CMR 4.02. This initial registration shall be valid for two years.

110.R4.1.6 Renewals. Registration shall be renewed every two years. Within 30 days before the registration expiration date, the BBRS shall forward to each registrant a renewal form. Upon receipt of the completed form and fee in accordance with 801 CMR 4.02, the BBRS shall renew the registration for a period of two years or notify the applicant of reasons for refusal. *Any application for renewal of a registration which has expired shall require the payment of a new registration fee.*

110.R4.1.7 Prequalifying Agent. State Inspectors of the Department of Public Safety shall act as agents of the BBRS to inspect native lumber producing facilities. Upon receipt of a completed application, the State Inspector shall inspect the facility for compliance with the required qualifications and make recommendation to the BBRS.

110.R4.1.8 Penalties. Any person who fails to comply with the requirements of 780 CMR 110.R4 or who falsifies an application shall be subject to the penalties and actions as prescribed in section 114.0 of the *International Building Code 2009* with the Massachusetts Amendments (780 CMR 114.0).

110.R4.2 2 REGISTRATION STAMP

110.R4.2.1 Issuance. Each person registered by the BBRS shall be issued a specific name and number for use in stamping or certifying the native lumber produced at a specific mill.

110.R4.2.2 Contents. Each stamp shall be a minimum of two inches by four inches with a minimum of 36 pt. letters and shall contain the following information.

1. Name of native lumber producer;
2. Registration number; and
3. Species of wood.

Each producer shall be responsible for obtaining stamps made for their use in accordance with the requirements of the BBRS and 780 CMR 110.R4.

110.R4: continued

110.R4.2.3 Use. Each piece of native lumber shall be stamped with the name and registration number of the producer in accordance with 780 CMR 110.R4 and bear an approved mark identifying the species of wood. In *lieu* of stamping, a certification bearing the same stamped information may be provided by the producer for precut or re-manufactured lumber in accordance with 780 CMR 110.R4.

110.R4.2.4 Unlawful Use. It shall be unlawful to use a stamp registered for a specific mill at any other mill.

110.R4.3 REVOCATION AND SUSPENSION PROCEDURES

110.R4.3.1 Revocation and Suspension. The BBRS on its own initiative or upon the recommendation of the State Inspector may suspend or revoke the registration of any mill registered in accordance with 780 CMR 110.R4, 780 CMR or the standards of good practice. Notice of suspension or revocation of such registration shall be in writing with the reasons for suspension or revocation clearly set forth, and served in accordance with 780 CMR 114.0.

110.R4.3.2 Notice and Conference. Prior to suspension or revocation of a registration, written notice of such intent shall be served by the State Inspector in accordance with section 114.0 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 114.0). Within ten calendar days of receipt of such notice, the affected mill may request a conference with the State Inspector who will hear facts and make their recommendations to the BBRS.

110.R4.3.3 Effect of. Upon suspension or revocation of mill registration, the mill shall immediately cease engaging in the stamping or certifying of native lumber. The filing of an appeal with the Building Code Appeals Board shall stay such suspension or revocation subject to Chapter 1 of the *International Building Code 209* with Massachusetts Amendments (780 CMR 1.00).

110.R4.4 APPEALS

110.R4.4.1 Building Code Appeals Board. Anyone aggrieved by the decision of the BBRS, or others may appeal to the Building Code Appeals Board.

780 CMR 110.R5

LICENSING OF CONSTRUCTION SUPERVISORS

(Note: 780 CMR 110.R5 is unique to Massachusetts)

5.1 GENERAL

110.R5.1.1 Scope. The provisions of 780 CMR 110.R5 shall govern the licensing of construction supervisors

110.R5.1.2 Definitions. Unless otherwise expressly stated in 780 CMR the following terms shall, for the purpose of 780 CMR 110.R5, have the meaning indicated in 780 CMR 110.R5.1.2.

BBRS. State Board of Building Regulations and Standards.

CONSTRUCTION SUPERVISOR. A person of good moral character who is deemed qualified by the BBRS to directly supervise persons engaged in the scope of work shown in Table 110.R5.1. Such term shall also apply to persons supervising themselves.

Code	Designation	Note 1	Table 110.R5.1 Construction Supervisor License (CSL) Scope of Work
none ^a	CSL ^a	a, b, c, d	Construction, reconstruction, alteration, repair, removal, or demolition
none	CSL 1&2 Family Dwellings	b	Construction, reconstruction, alteration, repair, removal, or demolition
1A	CSL Masonry ^b	a, b, c, d	Construction, reconstruction, alteration, repair, removal, or demolition of masonry structures that require a permit. Not applicable for construction of masonry buildings
RF	CSL Roof Covering ^a	a, b, c	Construction, reconstruction, alteration, repair, or removal of roof covering, including repair and replacement of 25% of sheathing and 25% of sistering roof rafters
WS	CSL Window and Siding ^b	a, b, c	Construction, reconstruction, alteration, repair, or removal of doors, windows and siding including repair and replacement of damaged window or door framing < 4' wide and up to 25% of sheathing
SF	CSL Solid Fuel-Burning Appliance ^b	a, b, c	Installation of solid fuel burning appliances but does not allow work on any structural elements, including sheathing, with the exception of that required for the installation of either the inlet or exhaust elements
DM	CSL Demolition ^b	a, b, c, d	Demolition only.
IC	CSL Insulation ^b	a, b, c	Installation of insulation including repair and replacement of sheathing and siding necessary to access wall cavities
b. Specialty License		a. formerly known as "00, Unrestricted" CSL	
Note 1: Building Types and Structures			
a	Buildings of any use group which contain less than 35,000 cubic feet (991m ³) of enclosed space.		
b	One- and two-family dwellings or any accessory building thereto, irrespective of size.		
c	Building or structures for agricultural use.		
d	Retaining walls less than ten feet in height at all points along the wall as measured from the base of the footing to the top of the wall.		

HEARINGS OFFICER The Hearings Officer is the person selected by the Department of Public Safety and approved by the Chair of the BBRS to carry out the disposition of complaints against licensed construction supervisors.

HOMEOWNER Person(s) who owns a parcel of land on which he/she resides or intends to reside, on which there is, or is intended to be, a one- or two-family dwelling, attached or detached structures accessory to such use and/or farm structures. A person who constructs more than one home in a two-year period shall not be considered a homeowner.

LICENSED DESIGNEE. Any individual designated by the license holder to be present, in the absence of said license holder, during any of the periods stated in 780 CMR 110.R5.2.12. Such designee shall also hold a Construction Supervisor's License in the appropriate category (or better), but his name or license number need not be contained on the building permit application.

110.R5: continued

RECOGNITION The approval by the BBRS of an application and related documents by one desirous of being licensed as a construction supervisor.

110.R5.1.3 Scope. 780 CMR 110.R5 shall govern the testing and licensing of individuals who are found to possess the requisite qualifications to be licensed as a construction supervisor and to have charge or control of construction, reconstruction, alteration, repair, removal or demolition of certain buildings or structures or parts thereof, as identified.

110.R5.1.3.1. Individuals supervising persons engaged in construction, reconstruction, alteration, repair, removal or demolition involving any activity regulated by any provision of 780 CMR, shall be licensed in accordance with 780 CMR 110.R5. Individuals engaged in the supervision of the field erection of manufactured buildings in accordance with 780 CMR 110.R3, shall be licensed as construction supervisors.

Exception. Any homeowner performing work for which a building permit is required shall be exempt from the licensing provisions of 780 CMR 110.R5, provided that if a homeowner engages a person(s) for hire to do such work, then such homeowner shall act as supervisor. This exception shall not apply to the field erection of a manufactured buildings constructed pursuant to 780 CMR 110.R3.

Note. Any Licensed Construction Supervisor who contracts to do work for a homeowner shall be responsible for performing said work in accordance with 780 CMR and manufacture's recommendations, as applicable, whether or not the licensed contractor secured the permit for said work.

110.R5.1.3.2 Exemptions. A construction supervisor's license is not required for:

1. construction of swimming pools, the erection of signs, the erection of tents;
2. projects which are subject to construction control pursuant to Chapter 1 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 1.00);
3. agricultural buildings which are not open to the public or otherwise made available for public use;
4. *registered design professionals* provided such comply with the construction supervisor oversight requirements set forth in 780 CMR 110.R5 generally and 750 CMR 110.R5.2.12, as applicable;
5. Massachusetts certified *building officials*, provided such certification is current and they comply with the oversight requirements of 780 CMR 110.R5 generally and 780 CMR 110.R5.2.12, as applicable.
6. the practice of any trade licensed by agencies of the commonwealth (*see* M.G.L. c. 112, § 81R), provided that any such work is within the scope of said license including, but not limited to wiring, plumbing gas fitting, fire protection systems, pipefitting, HVAC and refrigeration equipment.

110.R5.1.3.3 Municipal Requirements. No municipality shall be prohibited from requiring a license for those individuals engaged in directly supervising persons engaged in construction, reconstruction, alteration, repair, removal or demolition in those categories of building and structures for which 780 CMR 110.R5 does not require a license.

110.R5.1.4 Administration and Enforcement. The BBRS shall administer and enforce the provisions of 780 CMR 110.R5. The BBRS or those designated by it shall administer examinations, under 780 CMR 110.R5, of persons desirous of being registered as qualified to receive a license as a construction supervisor.

5.2 REGISTRATION AND LICENSING

110.R5.2.1 Qualifications. A construction supervisor license candidate shall demonstrate that he or she has had at least three years of experience in their field. This experience must have been completed within the ten-year period prior to the date of application. Successful completion of certain educational programs may satisfy one to two years of required experience. In addition, all applicants are required to successfully pass an examination in order to receive a license. For a list of the pre exam qualifications access the examination application noted in 780 CMR 110.R5.2.2.

Exception: An individual holding a current certification per the requirements of 780 CMR 110.R7 shall be allowed to submit an application for an unrestricted construction supervisor license without the need for examination.

110.R5.2.2 Examinations. Examinations shall be held only by appointment. All exam applications must be filed in accordance with the construction supervisor license examination application found at www.mass.gov/dps.

110.R5: continued

110.R5.2.3 License Approval. A majority vote of the members of the BBRS shall be required to grant a license.

110.R5.2.4 Expiration. Licenses issued pursuant to these rules and regulations shall expire three years from the date of issuance, which shall be noted on said license and may be renewed. A renewal of an original license shall be for periods of two years and a renewal license shall expire two years from the date of issuance, which shall be noted on said license and may be renewed. A renewal license shall not be issued unless application therefore is made within one year of the date of expiration of the most recently issued license. If a licensee fails to renew his license within one year of the expiration date, such license may thereafter be renewed within two years of its expiration date upon the payment of a fee per 780 CMR 110.R5.3.5. Practice of construction supervision is prohibited with an expired license.

110.R5.2.5 Fees. Reserved

110.R5.2.6 Procedure for Obtaining a License.

110.R5.2.6.1 Application. License applicants meeting the qualifications of 780 CMR 110.R5.2.1 may submit an examination application per 780 CMR 110.R5.2.2 to the authorized testing agent of BBRS.

110.R5.2.6.2 Forms. It shall be the responsibility of the applicant to assure that the required forms are received by the testing agency. All forms shall be accompanied by the required license fee.

110.R5.2.6.3 Records. The BBRS shall keep a copy of the application and a computer file listing all licensed construction supervisors.

110.R5.2.6.4 Examination Date. Upon receipt of a fully completed application, an examination date shall be set by the authorized testing agency and the applicant so notified.

110.R5.2.7 False Statements. Any false statement on the application or references shall be sufficient reason to refuse to issue a license, or to suspend or revoke a license if issued.

110.R5.2.8 Cause for Suspension or Revocation. The following shall be grounds for reprimand, suspension, or revocation of a license:

1. the applicant made a false statement to the BBRS;
2. a licensee made a false statement to the BBRS;
3. any violation of 780 CMR;
4. work was performed without a building permit;
5. failure to fully cooperate with a BBRS investigation into a complaint;
6. failure to turn over a suspended or revoked license to the BBRS;
7. failure to abide by a mandate or order of the BBRS;
8. failure to properly supervise a project or be present at a work site as required by 780 CMR 110.R5
9. failure to meet the requirements of 780 CMR 110.R5.4.

110.R5.2.9 Procedure for Suspension or Revocation of License.

110.R5.2.9.1 Complaints. All complaints relative to a license must be in writing on a form provided by the BBRS. Any person, including a *building official* or the BBRS itself, may file a complaint. All complaints must be received by the BBRS within three years of the date the parties entered into an agreement to perform the work requiring licensure pursuant to 780 CMR 110.R5.

110.R5.2.9.1.1 Basis of Complaint. Work related to a specific building permit that is deemed to not comply with 780 CMR or a consistent pattern of abuse relating to contractual arrangements between license holder and client shall be the basis of such complaint. Any work requiring a building permit, which is performed without such permit shall be considered cause for suspension or revocation.

110.R5.2.9.1.2 Review and Investigation of Complaints. The BBRS or its designee shall review every complaint filed. If the reviewer determined that the complaint alleges plausible potential violations of 780 CMR by the licensee, a hearing shall be convened. The BBRS may, if it elects, investigate a complaint prior to scheduling a hearing. Failure of a complainant to cooperate in the investigation shall be grounds for dismissal of a complaint.

Upon receipt of a complaint, the BBRS or its designee shall send a letter acknowledging receipt to the complainant, the licensee being complained of, and the appropriate municipal *building official*. A copy of the complaint and all attachment shall be mailed to the license holder with the acknowledgment letter.

110.R5: continued

110.R5.2.9.3 Notice of Hearing. If the *hearings officer* or the BBRS determined that a hearing shall be held to resolve a complaint, reasonable notice shall be provided to the complainant and the license holder. Mailing of the notice to the address on record with BBRS shall be deemed satisfactory notice to the license holder. The notice of hearing shall contain.

1. The name of the complainant.
2. The date, time and place of said hearing.
3. The location of the incident giving rise to the complaint
4. Notice that either party may view the BBRS's complaint file by appointment.

110.R5.2.9.4 Hearings. Hearings convened pursuant to 780 CMR 110.R5 shall be conducted pursuant to 801 CMR 1.02: *Informal/Fair Hearing Rules*. Any party may be represented by legal counsel. All parties shall be permitted to present an opening statement, testify on their own behalf, cross-examine all witnesses, present any relevant witness testimony, present any relevant documentary evidence, and offer a closing argument. The *hearings officer* may question any witness and include any records kept by the BBRS as exhibits. The *hearings officer* may conclude the hearing at any time and issue a decision based on the evidence presented.

If a licensee does not appear for the hearing, the *hearings officer* may conduct a hearing in their absence and render a decision based upon the evidence presented, but only after making a finding that the licensee was provided notice as required by 780 CMR 110.R5.2.9.3.

110.R5.2.9.5 Decisions and Discipline of License Holders. The *hearings officer* shall issue a written decision after the hearing. Decisions shall be issued in a reasonably prompt manner. The *hearings officer* may suspend a license for a fixed period of time, revoke a license permanently, or reprimand the licensee. In conjunction with these disciplinary measures, the *hearings officer* may order the license holder to retake the CSL examination. Any license that is suspended or revoked shall be forwarded to the BBRS immediately. A person whose license is revoked may apply in writing to the BBRS for reinstatement no sooner than two years from the date of the revocation.

110.R5.2.10 Appeal. Any person aggrieved by a decision of the *hearings officer* may, in writing, request review of said decision by the BBRS. The filing of such a petition shall not serve to stay any disciplinary action taken by the *hearings officer*.

The BBRS may review such decision at its discretion. Such review is an administrative review that shall be based solely on the administrative record and is not to be construed as a second Hearing on the same complaint(s). After review, the BBRS may either deny the petition or remand the matter to the *hearings officer* for further proceedings as directed. The filing of an appeal with the BBRS shall serve to toll the timing provisions of M.G.L. c. 30A, § 14 until such time as a final decision is rendered by the BBRS.

110.R5.2.10.1 Appeal to a Court. Any person aggrieved by a decision of the *hearings officer* or the BBRS may appeal such decision in conformance with M.G.L. c. 30A, § 14.

110.R5.2.11 Change of Address. The license holder shall have the responsibility of reporting any change of address and/or change of circumstance to the BBRS. The information on file at the BBRS shall be deemed accurate unless changed by the license holder.

110.R5.2.12 On-site Presence of Supervisor. A licensed construction supervisor or a licensed designee as defined shall be present on the site at some point to approve construction, reconstruction, alterations, removal or demolition involving the following work.

Note. Any licensed construction supervisor who contracts to do work for a homeowner shall be responsible for performing said work in accordance with 780 CMR whether or not the licensed contractor secured the permit for said work.

1. Foundation:
 - a. Preparation of bearing material;
 - b. Location of foundation;
 - c. Placement of forms and reinforcing materials (if applicable);
 - d. Placing of concrete (or setting of other foundation materials);
 - e. Setting weather protection methods (if required);
 - f. Installation of waterproofing and/or damp proofing materials; and
 - g. Placement of backfill.

Note. If groundwater is encountered in excavating for foundation placement, the licensed construction supervisor shall report its presence to the *building official* and shall submit a report detailing methods of remediation.

110.R5: continued

2. Structural frame:
 - a. Installation of joists, trusses and other structural members and sheathing materials to verify size, species and grade, spacing and attachment/fastening methods. (The licensed construction supervisor shall ensure that any cutting or notching of structural members is performed in accordance with requirements of 780 CMR)
 - b. Setting of masonry or other structural systems (if used).
3. Energy conservation: Installation of insulation materials, vapor and air infiltration barriers.
4. Fire protection: Installation of smoke, heat and carbon monoxide (CO) detectors and/or systems.
5. Special construction, including, but not limited to:
 - a. Chimneys;
 - b. Retaining walls over four feet in height above grade.

The *building official* may require a licensed construction supervisor or his or her licensed designee to be present on the building site at other points during the construction, reconstruction, alterations, removal or demolition work as he or she deems appropriate.

110.R5.2.13 Lost/Stolen Licenses. License holders are required to keep the license in their possession at all times during the course of construction work at any and all building sites. If said license is lost, stolen or mutilated, it shall be the responsibility of the license holder to notify the BBRS.

110.R5.2.14 Requirement to Show License. A *building official* may require the license holder to produce the license at any time on a job site.

110.R5.2.15 Responsibility of Each License Holder.

110.R5.2.15.1 Responsibility for Work. The license holder shall be fully and completely responsible for all work for which he/she is supervising. He/she shall be responsible for seeing that all work is done pursuant to 780 CMR and the drawings as approved by the *building official*.

110.R5.2.15.2 Responsibility to Supervise Work. The license holder shall be responsible to supervise the construction, reconstruction, installation, alteration, repair, removal or demolition for the category of license held involving any activity regulated by any provision of 780 CMR and all other applicable Laws of the Commonwealth even though he, the license holder, is not the permit holder but only a subcontractor or contractor to the *permit* holder.

110.R5.2.15.3 Notification of Violations. The license holder shall immediately notify the *building official* in writing of the discovery of any violations which are covered by the building permit.

110.R5.2.15.4 Willful Violation. Any licensee who shall willfully violate 780 CMR shall be subject to revocation or suspension of license by the *hearings officer*.

110.R5.2.16 Permit Applications. All building *permit* applications shall contain the name, signature and license number and the category of license so held of the construction supervisor who is to supervise those persons engaged in the work as defined in the building *permit*. In the event that such licensee is no longer supervising said persons, the work shall immediately cease until a successor license holder is substituted on the records of the building department.

110.R5.2.17 Gender of Terms. The term "he" as used in 780 CMR 110.R5 shall include the pronoun "he" and/or "she."

110.R5.3 ADMINISTRATION

110.R5.3.1 Identification. The BBRS shall issue a card or a certificate or other form of license identification.

110.R5.3.2 Records of Licensees. The BBRS shall maintain a computer listing (www.mass.gov/dps) which will be available to the public at the office of the BBRS containing all licenses issued by the BBRS.

110.R5.3.3 Examination. The BBRS shall determine whether an examination shall be required, or shall be oral or written and shall determine the content of the examination, if applicable.

Exception. An individual holding a current certification per the requirements of 780 CMR 110.R7 shall be allowed to submit an application for the construction supervisor license without the need for examination.

110.R5: continued

110.R5.3.4 Subject to Rules, Regulations and Procedures. All persons licensed shall be subject to 780 CMR 110.R5, as well as other rules, regulations, and procedures promulgated by the BBRS.

110.R5.3.5 Fees. Any and all fees charged for licenses, examinations, renewals, and registrations shall be determined by the Commonwealth and enforced by the BBRS. Fees shall be established from time to time as necessary, and shall be paid in accordance with 801 CMR 4.02.

110.R5. 3.5.1 Building Official Fees. The BBRS shall grant a construction supervisor license without examination to an individual holding a current certification per the requirements of 780 CMR 110.R7. An individual seeking such license shall file an application to the BBRS and pay all appropriate license fees.

5.4 CONTINUING EDUCATION

110.R5.4.1 Standards. The BBRS may by rule adopt standards for continuing education requirements and course and instructor approval. The standards must include requirements for continuing education as applicable to buildings and building codes and referenced standards.

110.R5.4.2 Hours. A qualifying licensee must provide proof of completion of required hours of continuing education per two year license cycle in the appropriate category in which the licensee is licensed. Credit may not be earned if the licensee has previously obtained credit for the same course as either a student or instructor during the same licensing period.

- | | |
|---------------------------------------------------------------------|-----------|
| 1. Construction Supervisors License | 12 Hours |
| 2. Construction Supervisors License (One- and Two-Family Dwellings) | ten Hours |
| 3. Construction Supervisors Specialty License | six Hours |

Exception. *Building officials* who are certified and in good standing in accordance with 780 CMR 110. R7 are exempt from 780 CMR 110.R5.4.

110.R5.4.3 Education Topics. All Construction Supervisor License holders are required to complete the appropriate number of continuing education each two-year renewal cycle as described in 780 CMR 110.R5.4.2. The following hour(s) of continuing education topics are required:

- | | |
|---------------------------------------------------|----------|
| 1. Code Review | one hour |
| 2. Workplace Safety | one hour |
| 3. Business Practices / Workers' Compensation | one hour |
| 4. Energy (except Demolition Specialty License) | one hour |
| 5. Lead Safe Practices (only first renewal cycle) | one hour |

The remainder credit hours to be completed by approved electives.

110.R5.4.4 Accessibility. To the extent possible, the BBRS shall ensure that continuing education courses are offered throughout the state and are accessible to all licensees.

110.R5.4.5 Renewal of Approval. The BBRS is authorized to establish a procedure for renewal of course approval.

110.R5.4.6 Content. Continuing education consists of approved courses that impart appropriate and related knowledge in the regulated industries. Courses may include relevant materials that are included in licensing exams subject to the limitations imposed in 780 CMR 110.R5.4.6, item 1. The burden of demonstrating that courses impart appropriate and related knowledge is upon the person seeking approval or credit.

Course examinations will not be required for continuing education courses unless they are required by the instructor.

Unless determined by the coordinator textbooks are not required to be used for continuing education courses. The coordinator must provide students with a syllabus containing, at a minimum, the course title, the times and dates of the course offering, the names and addresses or telephone numbers and email address of the course coordinator and instructor, and a detailed outline of the subject materials to be covered. Any written or printed material given to students must be of readable quality and contain accurate and current information.

Upon completion of an approved course, licensees shall earn one hour of continuing education credit for each hour approved by the BBRS. Each continuing education course must be attended in its entirety in order to receive credit for the number of approved hours. Courses may be approved for full or partial credit, and for more than one regulated industry.

110.R5: continued

Continuing education credit in an approved course shall be awarded to presenting instructors on the basis of one credit for each hour of preparation for the initial presentation, which may not exceed three hours total credit for each approved course. Continuing education credit may not be earned if the licensee has previously obtained credit for the same course as a licensee or as an instructor within the Current licensing cycle

The following courses will not be approved for credit:

1. courses designed solely to prepare students for a license examination in a discipline other than CSL;
2. courses in mechanical office skills, including typing, speed reading, or other machines or equipment. Computer or business skills courses are allowed, if appropriate and related to the regulated industry of the licensee;
3. courses in motivation, psychology, or any other course not related to the building industry
4. courses that are primarily intended to impart knowledge of specific products of specific companies, if the use of the product or products relates to the sales promotion or marketing of one or more of the products discussed.

110.R5.4.7 Course Approval. Courses must be approved by the BBRS in advance and will be approved on the basis of the applicant's compliance with the provisions of this section relating to continuing education in the regulated industries. The BBRS shall make the final determination as to the approval and assignment of credit hours for courses. Courses must be at least one hour in length.

Approval will not be granted for time spent on meals or other unrelated activities. Breaks may not be accumulated in order to dismiss the class early. Classes shall not be offered to any one student for longer than six hours in one day, excluding meal breaks.

Application for course approval must be submitted 120 days before the course offering.

Approval is granted for a subsequent offering of identical continuing education courses without requiring a new application if the course is offered within the approved 24 month cycle. The BBRS shall deny future offerings of courses if they are found not to be in compliance with the laws relating to course approval. Course shall be updated subject to periodic review by the BBRS to ensure currency with technological changes in the building code.

110.R5.4.8 Course Coordinator. Each course of study shall have at least one coordinator, which is a person who is registered with the BBRS, who is responsible for supervising the program and ensuring compliance with all relevant law.

Each Coordinator shall oversee no more than twelve courses of study.

110.R5.4.9 Responsibilities of a Course Coordinator:

1. ensuring compliance with all laws and rules relating to continuing educational offerings governed by the BBRS;
2. ensuring that instructors are qualified to teach the course offering as defined in 780 CMR 110.R5.4.10;
3. maintaining accurate records relating to course offerings, instructors, tests taken by students if required, and student attendance for a period of three years from the date on which the course was completed. These records must be made available to the BBRS upon request. In the event that a coordinator ceases operation for any reason, the coordinator is responsible for maintaining the records or providing a custodian for the records acceptable to the BBRS. The coordinator must notify the BBRS of the name and address of that custodian. Under no circumstances will the BBRS act as custodian of the records;
4. supervising and evaluating courses and instructors. Supervision includes ensuring that all areas of the curriculum are addressed without redundancy and that continuity is present throughout the entire course;
5. providing course completion certificates within ten days of, but not before, completion of the entire course. Course completion certificates must be completed in their entirety. Course completion certificates must contain the following statement: "If you have any comments about this course offering, please mail them to the Board of Building Regulations and Standards attn: Education Coordinator. The current address of the department must be included. A coordinator may require payment of the course tuition as a condition for receiving the course completion certificate;
6. investigating complaints related to course offerings or instructors. A copy of the written, signed complaint must be sent to the BBRS within ten working days of course completion. An acknowledgment will be sent upon receipt of complaint via email.

110.R5: continued

7. to be available to instructors and students throughout course offerings and provide to the students and instructor the mailing address, telephone number and email address at which the coordinator can be reached;
8. participate in workshops or instructional programs as reasonably required by the BBRS;
9. furnishing the BBRS, upon request, with copies of course and instructor evaluations and qualifications of instructors. Evaluations must be completed by students at the time the course is offered and evaluations must be reviewed by coordinators within five days after the course offering;
10. notifying the BBRS in writing within ten days of any change in the information in an application for approval on file with the BBRS.

110.R5.4.10 Instructors. Each continuing education course shall have an instructor who is qualified by education, training, or experience to ensure competent instruction. Failure to have only qualified instructors teach at an approved course offering will result in loss of course approval. Coordinators are responsible to ensure that an instructor is qualified to teach the course offering.

1. Continuing education instructors must have one of the following:
 - a. a four-year degree (bachelor or equivalent) in any discipline plus two years' practical experience within the previous five years in the subject area being taught;
 - b. a four-year college degree (bachelors) or graduate degree in the subject area being taught;
 - c. a CSL holder or certified building official with at least three years experience in the subject area being taught; provided the instructor demonstrates proficiency in the subject matter
 - d. five years' practical experience within the previous ten years in the subject area being taught;

Note. A contractor whose construction license is currently suspended or revoked shall not teach or serve as a continuing education course instructor

2. Approved instructors are responsible for:
 - a. compliance with all laws and rules relating to continuing education;
 - b. providing students with current and accurate information;
 - c. maintaining an atmosphere conducive to learning in the classroom;
 - d. verifying attendance of students, submission of completed course evaluations and certifying course completion;
 - e. providing assistance to students and responding to questions relating to course materials; and
 - f. attending the workshops or instructional programs that are required by the BBRS.

110.R5.4.11 Prohibited Practices for Coordinators and Instructors. In connection with an approved continuing education course, coordinators and instructors shall not:

1. recommend or promote the services or practices of a particular business;
2. encourage or recruit individuals to engage the services of, or become associated with, a particular business;
3. require students to participate in other programs or services offered by the instructor or coordinator;
4. attempt, either directly or indirectly, to discover questions or answers on an examination for a license;
5. disseminate to any other person specific questions, problems, or information known or believed to be included in licensing examinations;
6. misrepresent any information submitted to the BBRS;
7. fail to cover, or ensure coverage of, major points, issues, and concepts contained in the course outline approved by the BBRS during the approved instruction; or
8. issue inaccurate course completion certificates.

Coordinators shall notify the BBRS within ten days of a felony or gross misdemeanor conviction or of disciplinary action taken against an occupational or professional license held by the coordinator or an instructor teaching an approved course. The notification shall be grounds for the BBRS to withdraw the approval of the coordinator and to disallow the use of the instructor.

110.R5.4.12 Fees. Fees for an approved course of study and related materials must be clearly identified to students. In the event that a course is canceled for any reason, all fees must be returned within 15 days from the date of cancellation. In the event that a course is postponed for any reason, students shall be given the choice of attending the course at a later date or having their fees refunded in full within 15 days from the date of postponement. If a student is unable to attend a course or cancels the registration in a course coordinator policies regarding refunds shall govern.

110.R5: continued

110.R5.4.13 Facilities. Each course of study must be conducted in a classroom or other appropriate facility that is accessible and adequate to comfortably accommodate the instructors and the number of students enrolled.

110.R5.4.14 Supplementary Materials. An adequate supply of supplementary materials to be used or distributed in connection with an approved course must be available at the time and place of the course offering in order to ensure that each student receives all of the necessary materials. Outlines and any other materials that are reproduced must be of readable quality.

110.R5.4.15 Advertisement. 780 CMR 110.R.4.15 governs the advertising of continuing education courses.

1. Advertising must be truthful and not deceptive or misleading. Courses may not be advertised in any manner as approved unless approval has been granted in writing by the BBRS.
2. No advertisement, pamphlet, circular, or other similar materials pertaining to an approved offering may be circulated or distributed in this state, unless the following statement is prominently displayed: *"This course has been approved by the Massachusetts Board of Building Regulations and Standards for (approved number of hours) hours for continuing (relevant industry) education."*
3. Advertising of approved courses must be clearly distinguishable from the advertisement of other non-approved courses and services.
4. The number of hours for which a course has been approved must be prominently displayed on an advertisement for the course. If the course offering is longer than the number of hours of credit to be given, it must be clear that credit is not earned for the entire course.
5. Advertising shall comply with the MA regulation for advertisement of private occupational schools, 603 CMR 3.14 and all advertising, including but not limited to 'false advertising' is governed by 940 CMR 3.10, violations of which are enforceable under the provisions of M.G.L. c. 93A, the Consumer Protection Act.

110.R5.4.16 Notice to Students. At the beginning of each approved offering, the following notice must be handed out in printed form or must be read to students:

"This educational offering is recognized by the Massachusetts Board of Building Regulations and Standards as satisfying (insert number of hours approved) hours of credit toward continuing (insert appropriate industry) education requirements."

110.R5.4.17 Audits. The BBRS reserves the right to audit subject offerings with or without notice to the coordinator.

110.R5.4.18 Falsification of Reports. Anyone found to have falsified an education report to the BBRS shall be subject to limitation, condition, suspension of the license, course coordinator approval or instructor approval can be revoked and/or fined up to \$1,000.00. The BBRS reserves the right to audit a licensee's continuing education records.

110.R5.4.19 Waivers and Extensions. If a licensee provides documentation to the BBRS that the licensee or its qualifying person is unable, and will continue to be unable, to attend actual classroom course work because of a physical disability, medical condition, military service or similar reason, attendance at continuing education courses shall be waived for a period not to exceed one two-year cycle. Licensee must make up delinquent credit hours and pay appropriate fees.

The BBRS may request documentation of the condition upon which the request for waiver is based as is necessary to satisfy the BBRS of the existence of the condition and that the condition does preclude attendance at continuing education courses.

110.R5.4.20 Reporting Requirements. Required continuing education must be reported in a manner prescribed by the BBRS. Licensees are responsible for maintaining copies of course completion certificates.

110.R5.4.21 Continuing Education Fees. See 801 CMR 4.02 for the following fees:

1. Course Approval:
 - a. initial course application fee for each continuing education course approval sought;
 - b. initial course approval fee for each hour or fraction of one hour. Initial course approval expires on the last day of the 24th month after the course is approved;
 - c. renewal of course approval fee for each hour or fraction of one hour. Renewal of course approval expires on the last day of the 24th month after the course is renewed.

110.R5: continued

2. Course Coordinator:

- a. initial coordinator approval fee. Coordinator may only oversee 12 courses. Initial coordinator approval expires on the last day of the 24th month after the coordinator is approved; and
- b. renewal of coordinator approval fee. Renewal of coordinator approval expires on the last day of the 24th month after the coordinator is renewed.

780 CMR 110.R6

**REGISTRATION AND ENFORCEMENT OF HOME IMPROVEMENT
CONTRACTOR PROGRAM**

(Note: 780 CMR 110.R6 is unique to Massachusetts)

For information including but not limited to registrations, renewals, and filing of complaints against a home improvement contractor (HIC), please contact the Office of Consumer Affairs and Business Regulation, which now administers this program. Also *see* M.G.L. c. 142A for statutory requirements pertaining to HIC.

Please note that licensing of construction supervisors per 780 CMR 110.R5 is administered by the Department of Public Safety.

The requirements of what is needed, a license or HIC registration, or both, to perform building construction, remains unchanged with 780 CMR, eighth edition.

NON-TEXT PAGE

780 CMR 110R7

**CERTIFICATION OF INSPECTORS OF BUILDINGS, BUILDING
COMMISSIONERS AND LOCAL INSPECTORS**

(Note: 780 CMR 110.R7 is unique to Massachusetts)

110.R7.1 GENERAL PROVISIONS

110.R7.1.1 Title. 780 CMR 110.R7.

110.R7.1.2 Definitions. Any terms not defined in 780 CMR 110.R7 shall assume the definition of the term as used elsewhere in 780 CMR.

BBRS. State Board of Building Regulations and Standards.

BUILDING OFFICIAL *see* the Massachusetts Amendments to the *International Building Code 2009* (780 CMR 2.00).

REGISTRANT. Any individual registered with the Board of Building Regulations and Standards (BBRS) as a *building official* in the capacity of an inspector of buildings/building commissioner or local inspector.

110.R7.1.3 Scope. 780 CMR 110.R7 shall control all matters relating to qualifications and certification of all *building officials* engaged in or to be engaged in the administration and enforcement of 780 CMR; categories of certified *building officials*; procedures for application, issuance, denial and revocation of certifications; approval of training and/or educational programs offered to meet the requirements for certification; maintenance of certification through continuing education; application fees for certification; and enforcement of 780 CMR 110.R7. 780 CMR 110.R7 shall establish standards and procedures for certification, and shall require all persons performing duties with respect to the inspection of building construction for any political subdivision within the Commonwealth to be certified as provided in 780 CMR 110.R7.

110.R7.1.4 Powers and Duties. The BBRS, working through the Administrator and the BBRS staff, shall have the following responsibilities in addition to all others provided in 780 CMR and 780 CMR 110.R7.

110.R7.1.4.1. Upon recommendations from the Building Official Certification Committee, established under 780 CMR 110.R7.1.5, to issue certifications to individuals deemed qualified as provided for in 780 CMR 110.R7.

110.R7.1.4.2. To maintain accurate records of all applications for certification and any official action thereon and to make such records available for inspection by the public at all reasonable times.

110.R7.1.4.3. To suspend or revoke a certification upon the establishment of grounds for discipline per 780 CMR 110.R7.4.1.5.

110.R7.1.4.4. Any person aggrieved by any notice, action, ruling or order of the Board, or the Building Official Certification Committee with respect to 780 CMR 110.R7, may have a right to a hearing as provided for by law.

110.R7.1.5 Inspector Certification Advisory Committee. The BBRS has established the Inspector Certification Advisory Committee (Building Official Certification Committee (BOCC)). This committee shall be supported by such staff of the BBRS as may be required for the effective operation of 780 CMR 110.R7.

110.R7.1.5.1 Powers and Duties. The BOCC shall have the responsibility to advise and to recommend to the BBRS on all items relating to the certification of *building officials*, including, but not limited to:

1. Issuing certificates
2. Reviewing applicant credentials
3. Maintaining applicant and certified inspector records
4. Hearing complaints and appeals pertaining to inspector certification
5. Reviewing and approving all courses of study, seminars, and other educational programs as deemed necessary, for continuing education requirements.
6. Monitoring all appointments to assure compliance with 780 CMR 110.R7.
7. Considering reciprocity with other states (upon petition of BOCC on forms provided for such purpose).

110.R7.1.5.2 Make-up of the Committee. The BOCC shall consist of nine members appointed by the BBRS as follows:

110.R7: continued

1. One member of the BBRS or his or her designee
2. Six members who are active *building officials* consisting of:
 - a. One member from each of the three Municipal Building Officials Associations (Southeastern Building Officials Association, Building Officials of Western Massachusetts, Massachusetts Building Commissioners and Inspectors Association).
 - b. Three members at large to be appointed by the BBRS.
3. One member from academia who is an educator of construction at the college level (*e.g.* architectural, civil, structural) to be appointed by the BBRS.
4. One member of the Massachusetts Municipal Association.

110.R7.1.6 Categories of Certification. Categories of certification for *building officials* are as follows:

110.R7.1.6.1 Inspector of Buildings or Building Commissioner. An individual certified as an inspector of buildings/building commissioner shall perform the duties as defined in 780 CMR and M.G.L. c. 143, as applicable.

110.R7.1.6.2 Local Inspector. An individual certified as a local inspector shall perform the duties as defined in 780 CMR and M.G.L. c. 143, as applicable.

110.R7.1.6.3 Alternate Inspector of Buildings/Building Commissioner. An alternate inspector of buildings/building commissioner shall be certified prior to appointment.

110.R7.1.7 Building Official Appointments.

110.R7.1.7.1. Permanent Appointments. No individual shall be permanently appointed to the position of inspector of buildings, building commissioner or local inspector in a municipal enforcing agency for which a certification requirement has been established by 780 CMR 110.R7, unless that individual has been deemed qualified and certified in that category by the BOCC.

Exception. Conditional appointments may be made pursuant to 780 CMR 110.R7.1.7.4.

110.R7.1.7.2 Reporting by Appointing Authority. Immediately following appointment, the clerk of each city or town shall report to the BBRS, the name, title and status of each new employee who is appointed as an inspector of buildings, building commissioner or local inspector. Said report shall be provided on forms as prescribed by the BBRS for said purpose and shall be submitted in attestation under the pains and penalties of perjury that said new employee meets or exceeds the minimum qualifications as defined by M.G.L. c. 143, § 3 and 780 CMR, as applicable.

110.R7.1.7.3 Historical Note. Any individual employed as inspector of buildings, building commissioner or local inspector and who was in office on November 12, 1992 and who was qualified (in accordance with M.G.L. c. 143, § 3) to be in office at time of hire, and who presented acceptable evidence of these facts to the BBRS, shall be deemed certified in the category held on said date, and shall be provided with a certificate by the BBRS.

110.R7.1.7.4 Conditional Appointments. Individuals who meet or exceed the experience requirements pursuant to M.G.L. c. 143, § 3 and 780 CMR, but who are not certified under the provisions of 780 CMR 110.R7 may be appointed on a conditional basis only. If so appointed these requirements shall be met:

1. Immediately upon appointment, the city or town clerk shall report the conditional appointment to the BBRS in accordance with 780 CMR 110.R7.1.7.2.
2. Within the first six months of employment the conditional appointee shall make application to take the examination(s) required for the appropriate category of certification.
3. Within one year following the first six months of employment a conditional appointee who is appointed as an inspector of buildings/building commissioner shall attain a passing score on all of the examinations required for that category of certification.
4. Within six months following the first six months of employment a conditional appointee who is appointed as a local inspector shall attain a passing score on all of the examinations required for that category of certification.
5. In accordance with 780 CMR 110.R7.1.7.4.1, a conditional appointee may petition the BOCC in writing for an extension of time to comply with the examination schedule of 780 CMR 110.R7. Upon establishment of cause, the BOCC may grant an extension as it may consider appropriate.
6. Conditional appointees shall notify the BBRS of any change in the status of their employment, within one month of such change.

110.R7: continued

7. Any individual conditionally appointed as an inspector of buildings/building commissioner shall first be certified as a local inspector.

110.R7.1.7.4.1 Requests for Exam Schedule Extension. Upon written petition to the BOCC, any conditional appointee unable to comply with the examination schedule as cited in 780 CMR 110.R7.1.7.4 may for cause, be granted an extension of time in order to comply. Petitions shall be forwarded to the clerk of the BOCC on forms for such purpose, and addressed to the office of the BBRS. The conditional appointee shall state all reasons to substantiate the request for an extension of time. Conditional appointees who have not attempted the examination schedule as herein defined during the prescribed period shall not be granted an extension, and no conditional appointee shall be afforded more than three extensions of time beyond the prescribed period for the level of certification sought.

110.R7.1.7.4.2 Notification. The BOCC shall, within ten days of any action taken by the committee pursuant to 780 CMR 110.R7, notify the appointing authority in writing of such action.

110.R7.1.7.4.3 Notice of Non-compliance. Any conditional appointee who has not attained passing scores in all examinations required for certification as a inspector of buildings/building commissioner and /or local inspector and who exhausted extension time as afforded by 780 CMR 110.R7.1.7.4.1 shall be deemed to be in non-compliance with M.G.L. c. 143, §3 and unauthorized to serve as a conditional appointee in the position for which they are not yet certified.

110.R7.2 REQUIREMENTS FOR INITIAL CERTIFICATION

110.R7.2.1 Application. Any candidate for certification in any category of *building official* issued pursuant to 780 CMR 110.R7 shall submit an application to the BBRS, accompanied by the required application fee (if any), on forms provided for this purpose by the BBRS. The application shall include such information and documentation as the BBRS may require pursuant to 780 CMR 110.R7.

110.R7.2.2 Requirements for Certification as a Local Inspector:

110.R7.2.2.1 Pre Exam Approval. All candidates shall meet or exceed the qualifications for the position of local inspector pursuant to M.G.L. c. 143, § 3 and 780 CMR prior to taking any examinations. The BOCC shall approve all candidates prior to taking any examinations and shall maintain a list of all qualified candidates for any and all city and towns appointing *building officials*.

110.R7.2.2.2 Successful Examination. All candidates shall attain a passing score in all examinations required for certification as either a Building Plans Examiner (identified as Exams 1B, 1C, 3B and 3C) or Building Inspector (identified as Exams 1A, 1B and 3B) as defined by the National Certification Program for Construction Code Inspectors (NCPCCI) or equivalent exam categories as approved by the BBRS for such purpose and as offered by the International Code Council (ICC).

110.R7.2.2.3 Prior Approval for Examination as a Local Inspector. No candidates shall be allowed to take said examinations without prior approval of the BBRS or the BOCC at the discretion of the BBRS.

110.R7.2.3 Requirements for Certification as an Inspector of Buildings/Building Commissioner.

110.R7.2.3.1 Pre Exam Approval. All candidates shall meet or exceed the qualifications for the position of inspector of buildings/building commissioner pursuant to M.G.L. c. 143, § 3 and 780 CMR prior to taking any examinations. All candidates shall meet the examination requirements for certification as a local inspector pursuant to 780 CMR 110.R7.2.2.2, or hold a certification as a local inspector pursuant to 780 CMR 110.R7.2.2. The BOCC shall approve all candidates prior to taking any examinations and shall maintain a list of all qualified candidates for any and all city and towns appointing *building officials*.

110.R7.2.3.2 Successful Examination. All candidates shall attain a passing score in all examinations required for certification as a Certified Building Official as defined by the Certified Building Official Program of the Council of American Building Officials (CABO) or equivalent exam categories as approved by the BBRS for such purpose and as offered by the International Code Council (ICC).

110.R7: continued

110.R7.2.3.3 Prior Approval for Examination as an Inspector of Buildings/Building Commissioner. No candidates shall be allowed to take said examinations without prior approval of the BBRS or the BOCC at the discretion of the BBRS.

110.R7.2.4 Retired Persons. Any person who has been duly certified in accordance with 780 CMR 110.R7 and who retires from service in good standing, may petition the committee to receive “retired status” certification. Upon approval said certification shall be denoted “retired” and shall not be deemed revoked. Revocation shall only be invoked for cause. Any person who has been approved for “retired status” certification and who wishes to reactivate said certification shall comply with the examination schedule as defined in 780 CMR 110.R7 for the level of certification sought.

110.R7.3 REQUIREMENTS FOR MAINTENANCE OF CERTIFICATION STATUS

110.R7.3.1 Continuing Education Requirements. Within each three-year period following initial certification, the registrant to maintain certification shall complete 45 hours of continuing education credit acceptable to the BOCC. Conditional appointees as defined by 780 CMR 110.R7 shall attain at least one contact hour of education credit for each month of employment until such time as the conditional appointee has successfully completed the required examination schedule and is certified as prescribed.

110.R7.3.1.1 Requirements for Energy Code Training. *Building officials* shall be trained in the energy provisions of the building code every three years, corresponding with the adoption of the latest edition of the *International Energy Conservation Code* per M.G.L. c. 169, § 5 (The Green Communities Act of 2008) and policy of the BBRS.

110.R7.3.2 Course Curriculum. The BOCC may publish a list of acceptable educational programs, courses, seminars, and the like and may also accept educational activities in which registrants have participated after the fact, upon application and review of the course information. The BOCC shall assign credits to each educational/training event and shall issue policies and procedures, separate from 780 CMR 110.R7, relative to continuing education requirements.

110.R7.3.3 Course Log. Each certified individual shall maintain a record of his/her continuing education. Credit hours shall be reported to the BBRS or other approved agencies as prescribed by the policies and procedures of the BOCC, relative to continuing education. The BBRS shall maintain a record of each inspector’s progress towards completion of the 45-hour requirement. At the end of each three-year period, each inspector who has successfully attained his/her continuing education requirement shall be duly notified by the BBRS.

110.R7.3.4 Rights and Privileges. In accordance with M.G.L. c. 143, § 99, no *building official* attending BBRS required educational programs, shall lose any rights relative to compensation or vacation.

110.R7.4 PROCEDURES FOR COMPLAINTS

110.R7.4.1 Complaints.

110.R7.4.1.1 Complaint Intake. A complaint about a certified *building official* must be in writing and shall be received and reviewed by the Administrator, or his designee. The Administrator may cause the complaint to be investigated further, dismissed for failure to assert a cognizable or actionable claim, or referred to the BOCC for a hearing on the merits. Actions taken pursuant to this section shall be left to the sound discretion of the Administrator.

110.R7.4.1.2 Notice of Hearing. If the Administrator refers a matter to the BOCC for hearing, reasonable notice of the hearing shall be provided to the certification holder. Mailing of the notice via first class mail to the address on record with the BBRS shall be deemed satisfactory notice to the holder. The notice of hearing shall contain:

1. The name of the complainant.
2. The date, time and place of said hearing.
3. The basis of the complaint.
4. Notice that the holder may review the Board's complaint file by appointment.

110.R7: continued

110.R7.4.1.3 Hearing. Hearings held pursuant to 780 CMR 110.R7.4.1 shall be conducted in accordance with M.G.L. c. 30A and 801 CMR 1.02: *Informal/Fair Hearing Rules*. Any party may be represented by legal counsel at such a hearing. At the hearing, the certification holder shall be permitted to present an opening statement, testify on their own behalf, cross-examine all witnesses, present any relevant witness testimony, present any relevant documentary evidence, and offer a closing argument. Any person offering testimony at the hearing shall be sworn in. The BOCC may question any witness and include any records on file with the BBRS as exhibits. The BOCC may, at their discretion, conclude the hearing at any time and issue a recommended decision based on the evidence presented.

If a certification holder does not appear for the hearing, the BOCC may conduct a hearing and render a recommended decision based upon the evidence presented only after making a finding that the certification holder was provided reasonable and proper notice of the hearing as required by 780 CMR 110.R7.4.1.2.

110.R7.4.1.4 Decisions and Discipline of Certification Holders. The BOCC shall issue a written decision after the hearing. Decisions shall be issued in a reasonably prompt manner. The decision of the BOCC shall serve as a recommendation to the BBRS and shall be promptly forwarded by the Administrator to the full board for review. If after a hearing the BOCC finds that the holder has violated any provision of 780 CMR 110.R7.4.1.5, it may recommend suspension of a certification for a fixed period of time, revocation of a certification permanently, or a reprimand of the certification holder. Further, the BOCC may recommend that any order include appropriate remedial or disciplinary conditions. Once forwarded to the BBRS, the board shall either, adopt the recommendation in its entirety, adopt the recommendation with amendment, reject the recommendation in its entirety, or remand the matter to the BOCC further proceedings. A certificate holder whose certification is revoked may apply in writing to the Board for reinstatement no sooner than one year from the date of the revocation.

110.R7.4.1.5 Grounds for Discipline. The following shall be grounds for discipline of a certification holder.

1. The holder has obtained a certification by fraud or misrepresentation;
2. The holder has aided or abetted in practice as a certified *building official* any person not authorized to practice as a certified *building official* under the provisions of 780 CMR 110.R7;
3. The holder has fraudulently or deceitfully practiced as a certified *building official*;
4. The holder has been grossly negligent or has engaged in misconduct in the performance of any of his or her duties;
5. The holder has failed to maintain continuing education requirements as specified in 780 CMR 110.R7;
6. The holder has been found to have failed to report an offer, or bribe, or other favor in a proceeding under 780 CMR 110.R7;
7. The holder has made a false or misleading statement to the BBRS, or has made a material omission in any submission to the BBRS;
8. The holder has failed to appropriately enforce the provisions of 780 CMR as prescribed by M.G.L. c. 143, § 3;
9. The holder has engaged in any conduct in violation of 780 CMR or any state or federal law rendering them unsuitable to be certified as a building official.
10. The holder has been found to have violated state ethics laws by the State Ethics Commission.
11. The holder failed to cooperate in an investigation being conducted by the BBRS or Administrator.

110.R7.4.1.6 Appeal. A decision made after a hearing shall be considered final when it is issued by the BBRS. Any party aggrieved by a final decision of the BBRS may appeal to superior court within 30 days of receipt thereof pursuant to M.G.L. c. 30A, § 14.

110.R7.4.1.7 Employment of an Uncertified Individual. In accordance with M.G.L. c. 143, § 3, no municipality may offer employment to, retain for employment or permanently appoint any individual who is not certified in accordance with 780 CMR 110.R7, except on a conditional basis in accordance with 780 CMR 110.R7.1.7.4.

NON-TEXT PAGE

(780 CMR 111.00 THROUGH 114.000: RESERVED)

(PAGES 293 THROUGH 300 ARE RESERVED FOR FUTURE USE.)

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

CHAPTER 115: APPENDICES

IBC appendices are adopted as follows:

APPENDIX A: EMPLOYEE QUALIFICATIONS Reserved, not adopted

APPENDIX B: BOARD OF APPEALS Reserved, not adopted,

APPENDIX C: GROUP U - AGRICULTURAL BUILDINGS Adopted and amended as follows:

C101.2 and C101.3 Add two sections:

C101.2 Occupancy Thresholds. Buildings that exceed an occupancy load of 100, that would otherwise be classified as *Group U* Agricultural, shall be classified per their intended use.

Exception. Riding arenas shall have an occupancy load limit of 100.

C101.3 H-Use. Agricultural buildings used to store commercial fertilizers, herbicides, or pesticides shall comply with 527 CMR, 780 CMR, and M.G.L. c. 132B with its associated regulations, as applicable.

C102.3 Delete.

TABLE C102.1 Add a second footnote (b) to **ALLOWABLE AREA**. This footnote is to read as follows:

b. Greenhouses that comply with snow-load requirements are exempt from the area requirements set forth in C102.

APPENDIX D: FIRE DISTRICTS Reserved, not adopted

APPENDIX E: SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS Reserved, not adopted

APPENDIX F: RODENTPROOFING Adopted in its entirety.

APPENDIX G: FLOOD-RESISTANT CONSTRUCTION Amend as follows:

APPENDIX G: FLOOD-RESISTANT CONSTRUCTION

G101.3 Scope. Add the following last sentence:

All buildings and structures including new or replacement manufactured homes erected in areas prone to flooding and/or coastal dunes shall be constructed and elevated as required by the provisions of this appendix.

G102.1 General. Replace as follows:

G102.1 General. This appendix, in conjunction with section 1612 and other sections of this code provides minimum requirements for development located in flood hazard areas and coastal dunes, including installation of utilities; placement and replacement of manufactured homes; new construction and repair, reconstruction, rehabilitation or additions to existing construction; substantial improvement of existing buildings and structures, including restoration after damage, substantial repairs of foundations, temporary structures, and temporary or permanent storage, utility and miscellaneous Group U buildings and structures, and certain building work exempt from permit under section 105.2.

Note. Work in both flood hazard areas and coastal dunes shall meet the requirements for both areas.

G102.2 Replace as follows:

G102.2 Establishment of Flood Hazard Areas. *Flood hazard areas* are established in section 1612.

115.00: continued

G103 POWERS AND DUTIES Reserved

G104 POWERS Reserved

G105 VARIANCES Reserved

G201.2 Definitions. Add the following definitions and delete the definitions for DEVELOPMENT, FUNCTIONALLY DEPENDENT FACILITY, MANUFACTURED HOME PARK OR SUBDIVISION, VARIANCE, and VIOLATION:

BREAKWAY WALL. A wall that is not part of the structural support of the building and intended, through its design and construction, to collapse under specific lateral forces, without causing damage to the elevated portion of the building or supporting foundation system.

COASTAL DUNE. Any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. *Coastal dune* also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control. For purposes of this appendix, a coastal dune is one that has been determined to be significant to the interests of flood control and/or storm damage prevention as defined in the Wetlands Protection Act, M.G.L. c. 131, § 40.

FLOOD HAZARD BOUNDARY MAP. An official map of a community where the boundaries of the flood, mudslide (*i.e.*, mudflow) related erosion areas have been designated as Zones A, M, and/or E.

HIGHEST ADJACENT GRADE. The highest natural elevation of the ground surface, prior to construction, adjoining the proposed foundation walls of a structure.

LATERAL ADDITION. an addition that expands the footprint of a building or structure including a manufactured home.

STRUCTURE. (This definition is intended to be utilized with this Appendix.) A walled and roofed building, including a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home.

SUBSTANTIAL REPAIR OF A FOUNDATION. Work to repair and/or replace a foundation that results in the repair or replacement of the portion of the foundation walls with a perimeter along the base of the foundation that equals or exceeds 50% of the perimeter of the base of the entire foundation measured in linear feet. The term “substantial repair of a foundation” also includes a building or structure including a manufactured home that has incurred a failure of a foundation regardless of the actual work done to repair or replace the foundation.

SECTION G301 Replace the entire section as follows:

SECTION G301 Design and Construction Requirements in Flood Hazard Areas and Coastal Dunes.

G301.1 General. Work subject to the requirements of Appendix G shall be designed by a *registered design professional*. Design certification shall be provided in accordance with section 1612.5.

Construction documents shall indicate proposed details of floor, wall, foundation support components, loading computations, and other essential technical data used to meet the requirements of this appendix.

G301.2 Elevation of Structures.

G301.2.1 In Flood Hazard Areas. For new buildings and structures, *substantial improvements*, new foundations, and replacement or substantial repair of a foundation, the entire structure shall be elevated so that the *lowest floor*, including basement/cellars, is located at or above *base flood* elevation. For lateral additions that are a *substantial improvement*, only the addition shall be elevated so that the *lowest floor*, including basement/cellars, is located at or above *base flood* elevation.

115.00: continued

Exception. The *lowest floor* for occupancies other than the R-use group may be constructed below base flood elevation provided it is designed in accordance with section 6.2 of ASCE 24.

G301.2.2 In Flood Hazard Areas Subject to High Velocity Wave Action. For new buildings and structures, *substantial improvements*, replacement or substantial repair of a foundation and lateral additions that are substantial improvements, the entire structure shall be elevated so that the bottom of the lowest horizontal structural member supporting the lowest floor, with the exception of mat or raft foundations, piling, pile caps, columns, grade beams and bracing, is located at an elevation that is at least **two feet** above the base flood elevation. For lateral additions that are not a *substantial improvement*, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor, with the exception of pilings or pile caps is located at an elevation that is at least **two feet** above the base flood elevation.

G301.2.3 In Coastal Dunes. For new buildings and *structures*, new foundations, replacement or substantial repair of a foundation, or repair of a substantially damaged structure where damage is the result of a storm or flooding the entire structure shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps is located at the elevation required by the Order of Conditions of the local Conservation Commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and Wetlands Protection regulations, 310 CMR 10.21 through 10.35. For lateral additions that are not a *substantial improvement*, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps is located at the elevation required by the Order of Conditions of the local Conservation Commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and the Wetlands Protection regulations at 310 CMR 10.21 through 10.35.

G301.3 Enclosures below Base Flood Elevation.

G301.3.1 Flood hazard areas. Enclosed spaces, including basements and cellars, are not permitted below the *base flood* elevation.

Exception 1. Fully enclosed spaces in an area other than a basement/cellar, used for means of egress, entrance foyers, stairways and incidental storage are allowed but shall be designed to automatically equalize hydrostatic forces on exterior walls by allowing for the entry and exit of floodwaters in accordance with ASCE 24 section 2.6.

Exception 2. Occupancies other than R-use group may be erected with habitable enclosed spaces or floors below the *base flood* elevation provided that the following conditions are met:

1. All space below the *base flood* elevation **plus one foot** shall be constructed with walls and floors that are substantially impermeable to the passage of water.
2. All structural components subject to hydrostatic and hydrodynamic loads and stresses during the occurrence of flooding to the base flood elevation shall be capable of resisting such forces, including the effects of buoyancy.
3. All openings below the *base flood* elevation **plus one foot** shall be provided with water-tight closures and shall have adequate structural capacity to support all flood loads acting upon the closure surfaces.
4. All floor and wall penetrations for plumbing, mechanical and electrical systems shall be made water tight to prevent floodwater seepage through spaces between the penetration and wall construction materials. Sanitary sewer and storm drainage systems that have openings below the *base flood* elevation **plus one foot** shall be provided with shutoff valves or closure devices to prevent backwater flow during conditions of flooding.

G301.3.2 Flood Hazard Areas Subject to High Velocity Wave Action. All spaces that are **less than two feet** above the base flood elevation shall not be used for habitation and shall be free of obstruction except as permitted:

1. Mat or raft foundations, piling, pile caps, bracing, grade beams and columns which provide structural support for the building.
2. Entrances and exits used for required means of egress.

115.00: continued

3. Incidental storage of portable or mobile items readily moved in the event of a storm.

4. Walls and partitions are permitted to enclose all or part of the space below the elevated floor provided that such walls and partitions are not part of the structural support of the building and are constructed with insect screening, open wood lattice, or non-supporting walls designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system due to the effect of wind and water loads as specified in section 16.00 acting simultaneously.

G301.3.3 Coastal Dunes. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

G301.4 Lateral Additions That Are Substantial Improvements. If a *substantial improvement* consists exclusively of a lateral addition that does not rely on the support of the existing structure, only the lateral addition must be erected in accordance with the applicable provisions of this appendix. In a *flood hazard area subject to high-velocity wave action* the addition and the existing *structure* must meet the provisions of this appendix.

G301.5 Foundations. Foundations shall be designed in accordance with section 18, ASCE 7 and ASCE 24. Anchorage of buildings and *structures* shall be designed and connected to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the base flood.

G301.5.2 Flood Hazard Areas Subject to High Velocity Wave Action. Foundations for work meeting the elevation requirements of section G301.2.2 shall consist of pilings or columns.

G301.5.3 Coastal Dunes. Foundations for work meeting the elevation requirements of section G301.2.3 shall consist of open pilings without footings to allow the movement of the dune.

Exception. Where surface or subsurface conditions consist of non-erodible soil that prevents the use of pile foundations, spread footings or mat foundations may be permitted. Such foundations shall be anchored to prevent sliding, uplift or overturning of the footing and the non-erodible soil it is attached to and be designed to withstand any combination of loads.

G401.1 Development in Floodways Reserved.

G401.3 Add before the first sentence:

“In addition to complying with applicable provisions of 310 CMR 15.00: The State Environmental Code, Title 5: *Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage* and 314 CMR 3.00: *Surface Water Discharge Permit Program* and 314 CMR 5.00: *Ground Water Discharge Permit Program*.”

G401.4 Add before the first sentence:

“In addition to complying with applicable provisions of 310 CMR 22.00 *Drinking Water* and the DEP Guidelines for Public Water Systems,”

G401.5 Storm Drainage Reserved.

G401.6 Streets and Sidewalks Reserved.

G501.1 Replace the last phrase “to or above the design elevation: with “in accordance with section G301.2.

G501.2 Add at the end of the paragraph “and section G301.6”.

G501.3 Add at the end of the first sentence “and in accordance with section G301.6” Delete the last two sentences.

G701.2 Add the following phrase before the first sentence:

“In addition to complying with applicable provisions of 527 CMR 9.00: *Tanks and Containers*,”

115.00: continued

G801.2 through 5 Delete subsections.

G901.3 Floodway Encroachment Reserved.

G1001.1 Replace the words "International Building Code" with "this code".

G1001.6 Replace as follows:

G1001.6 Protection of Mechanical and Electrical Systems in a Flood-hazard Zone:

New and replacement electrical, heating, ventilating, air conditioning and other service equipment in a *flood-hazard area* shall either be placed above the *base flood elevation* or protected so as to prevent water from entering or accumulating within the system components during floods up to the *base flood elevation* in accordance with the mechanical code listed in Chapter 1.0. Installation of electrical wiring and outlets, switches, junction boxes and panels below the *base flood elevation* shall conform to the provisions of 527 CMR 12.00: *2008 Massachusetts Electrical Code (Amendments)* listed in Chapter 1.0 for location of such items in wet locations. Duct insulation subject to water damage shall not be installed below the *base flood elevation*.

APPENDIX H: Adopted in its entirety

APPENDIX I: Adopted in its entirety.

APPENDIX J: Amend as follows:

J101.1 At the end of the first sentence add this text:

'when directly associated with the construction, alteration, repair, or demolition of buildings or structures.'

APPENDIX K: ADMINISTRATIVE PROVISIONS Reserved, not adopted.

APPENDIX AA:

APPENDIX AA: STRETCH ENERGY CODE

The Stretch Energy Code is the *International Energy Conservation Code (IECC) 2009* with Massachusetts Amendments (780 CMR 115.AA).

101.1, 101.2, and 101.3 Replace as follows:

101.1 Title. This code shall be known as the Massachusetts Stretch Energy Code and shall be cited as such. It is referred to as "this code."

101.2 Scope. This code applies to new residential buildings, renovations of or additions to existing residential buildings, new commercial buildings, and additions to existing commercial buildings. Renovations of existing commercial buildings, and replacement or reconstruction of existing commercial building components and elements, are not subject to the provisions of this code. Buildings not included in this scope shall comply with Chapter 13 or 34 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 13.00 or 34.00) or for Single- and Two-family dwellings at 780 CMR 61.00, or 93.00, as applicable.

101.3 Purpose and Intent. The purpose of this code is to provide a more energy efficient alternative to the base code energy for new and existing buildings. A municipality seeking to ensure that construction within its boundaries is designed and built above the energy efficiency requirements of 780 CMR may mandate adherence to this code.

This code may be adopted or rescinded by any municipality in the commonwealth in the manner prescribed by law.

If adopted by a municipality, this code, rather than Chapter 13 or 34 of the *International Building Code 2009* with Massachusetts Amendments (780 CMR 13.00 or 34.00) or for Single- and Two-family dwellings at 780 CMR 61.00, or 93.00, as applicable, shall govern.

This code shall regulate the design and construction of buildings to provide flexibility, and, permit the use of innovative approaches and techniques to achieve effective energy use.

101.4.3 Replace Exceptions as follows

Exceptions:

115.00: continued

1. Storm windows installed over existing fenestration.
2. Repairs to an existing sash and frame.
3. Existing ceiling, wall or floor cavities, of the building envelope, exposed or accessible during construction provided that any empty cavities are filled with insulation that meets or exceeds an R value of $R - 3.5/\text{inch}$.
4. Reroofing or residing over uninsulated roofs or walls where the sheathing is not exposed.
5. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a conditioned space from the exterior shall not be removed,
6. Alterations that replace less than 50% of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.
7. Alterations that replace only the bulb and ballast within the existing luminaires in a space provided that the alteration does not increase the installed interior lighting power.

104.1 Replace as follows:

104.1 General. Construction or work for which a permit is required shall be subject to inspection by the code official or approved inspection agencies.

104.5 Replace as follows:

104.5 Approved Inspection Agencies. The code official is authorized to require or accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

107, 108 and 109 Delete.

202 Add definitions as follows:

FENESTRATION PRODUCT, FIELD-FABRICATED. A fenestration product including an exterior glass door whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product or exterior door. Field fabricated does not include site-built fenestration with a label certificate or products required to have temporary or permanent labels.

FENESTRATION PRODUCT, SITE-BUILT. Fenestration designed to be field-glazed or field assembled units using specific factory cut or otherwise factory formed framing and glazing units. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

FURNACE ELECTRICITY RATIO. The ratio of furnace electricity use to total furnace energy computed as $\text{ratio} = (3.412 \cdot \text{EAE}) / (1000 \cdot \text{EF} + 3.412 \cdot \text{EAE})$, where EAE (average annual auxiliary electrical consumption) and EF (average annual fuel energy consumption) are defined in 10 CFR Part 430, Subpart B, Appendix N and EF is expressed in millions of Btu's per year.

ON-SITE RENEWABLE ENERGY. Includes solar photovoltaic; active solar thermal that employs collection panels, heat transfer mechanical components and a defined heat storage system; wind; small hydro; tidal; wave energy; geothermal (core earth); biomass energy systems; landfill gas and bio-fuel based electrical production. Onsite energy shall be generated on or adjacent to the project site and shall not be delivered to the project through the utility service.

301.1 through 301.3 Replace as follows:

301.1 General. Climate Zone 5 and moisture regime A (Moist) shall be used in determining the applicable requirements from Chapters 4 and 5 for locations in Massachusetts.

401 Replace as follows:

401.1 Scope. Chapter 4 applies to residential buildings.

401.2 New Construction. New low-rise (three stories or less) residential buildings including townhouses shall require a HERS (Home Energy Rating System) index rating as verified by a RESNET (Residential Energy Services Network) certified HERS rater.

1. For units equal to or greater than 3,000 sq. ft. in conditioned floor space, a HERS rating of 65 or less is required.
2. For units less than 3,000 sq. ft., a HERS rating of 70 or less is required.
3. In addition, all new construction shall demonstrate compliance with the Energy Star Qualified Homes Thermal Bypass Inspection Checklist¹

115.00: continued

401.3 Prescriptive Option for Residential Additions. Additions to an existing building, building system or portion thereof shall conform to IECC 2009 Chapter 4, and shall further demonstrate compliance with:

1. The Energy Star Qualified Homes Thermal Bypass Inspection Checklist¹.
2. Fenestration U-factor requirements as listed in Energy Star program requirements for Residential Doors, Windows and Skylights - Version 5²
3. Ducts for new HVAC systems shall be sealed and tested post-construction to demonstrate leakage to outdoors of less than or equal to 4 cfm per 100 sq. ft. of conditioned floor area, except where the air handler and all ducts are located within *conditioned space*.

401.4 Performance Option for Residential Additions. The performance approach and HERS ratings of 401.2 may be followed in *lieu* of the prescriptive requirements of section 401.3

401.5 Prescriptive Option for Alterations, Renovations or Repairs. Alterations, renovations or repairs that involve accessing the building envelope shall require the affected portion of the envelope to comply with 401.3. Envelope insulation shall meet or exceed IECC 2009 requirements (Chapter 4, section 402) for climate zone 5, or fully fill existing cavities with insulating material which meets or exceeds an R value of R 3.5/inch.

401.6 Performance Option for Alternations, Renovations or Repairs. In all cases of alternations, renovations or repairs the performance approach of 401.2 may be followed in *lieu* of the prescriptive requirements of section 401.5 with the following HERS rating requirements:

1. For units equal to or greater than 2,000 sq. ft. in conditioned floor space, a HERS rating of 80 or less is required.
2. For units less than 2,000 sq. ft., a HERS rating of 85 or less is required.
3. Compliance with the Energy Star Qualified Homes Thermal Bypass Inspection Checklist.

¹ http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/Thermal_Bypass_Inspection_Checklist.pdf.

² http://www.energystar.gov/ia/partners/prod_development/archives/downloads/windows_doors/WindowsDoorsSkylightsProgRequirements7Apr09.pdf.

Chapter 5 Change title to:

CHAPTER 5 ADVANCED COMMERCIAL ENERGY EFFICIENCY

501.1 and 501.2 Replace as follows:

501.1 Scope. The requirements contained in this chapter are applicable to new construction of commercial buildings, or portions of commercial buildings.

Exceptions:

1. Commercial buildings less than 5,000 sq. ft.
2. Commercial buildings from 5,000 to 40,000 sq. ft. in area with these uses:
 - a. Supermarkets
 - b. Warehouses
 - c. Laboratories
 - d. A building of specialized use by variance to this code through appeal to the BBRS.

501.1.1 Buildings Greater than 100,000 sq. ft. Buildings greater than 100,000 sq. ft., and additions to such buildings greater than or equal to 30% of the existing conditioned floor area, shall be designed to achieve energy use per square foot equal to at least 20% below the energy requirements of *ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except for Low-Rise Residential Buildings*, Appendix G, measured by industry-accepted energy modeling.

501.1.2 Mandatory Requirements for Buildings Subject to 501.1.1. Buildings subject to 501.1.1 must comply with:

1. the mandatory requirements set forth in sections 502.4, 503.2, 504 and 505, or
2. the mandatory requirements of ASHRAE Standard 90.1-2007: 5.4, 6.4, 7.4, 8.4, 9.4, 10.4.
3. the lighting power density requirements of TABLE 505.5.2

501.1.3 Special Energy use Buildings. Buildings greater than 40,000 sq. ft. in area, and additions to such buildings greater than or equal to 30% of the existing conditioned floor area with these uses:

1. Supermarkets
2. Warehouses

115.00: continued

3. Laboratories

shall be designed to comply with the performance requirements of 501.1.1.

501.1.4 Performance Option for Buildings from 5,000 to 100,000 sq. ft. Buildings between 5,000 sq. ft. and 100,000 sq. ft., and additions to such buildings greater than or equal to 30% of the existing conditioned floor area where the addition has its own heating system, shall comply with the performance requirements of 501.1.1, or the prescriptive option 501.2.

501.2 Prescriptive Option for Buildings from 5,000 to 100,000 sq. ft. Buildings from 5,000 to 100,000 sq. ft., and additions to such buildings greater than or equal to 30% of the existing conditioned floor area where the addition has its own heating system, shall comply with the requirements in sections 502, 503, 504, 505, and 507.

Compliance with section 507 requires complying with any ONE of the following prescriptive options:

1. 507.2.1 Efficient Mechanical Equipment
2. 507.2.2 Reduced Lighting Power Density
3. 507.2.3 On-Site Supply of Renewable Energy

Compliance with section 507 does not remove the requirement to comply with any other mandatory requirements in this code.

502.1.1 Delete from this section the last sentence.

Table 502.1.2, Table 502.2(1) and Table 502.2(2) Replace as follows:

**TABLE 502.1.2 - BUILDING ENVELOPE REQUIREMENTS OPAQUE ELEMENT,
MAXIMUM U-FACTORS**

Roofs	All Other	Group R
Insulation entirely above deck	U - 0.039	U - 0.039
Metal buildings (with R-5 thermal blocks)	U - 0.049	U - 0.049
Attic and other	U - 0.027	U - 0.027
Walls, Above Grade		
Mass, exterior insulation	U- 0.080	U- 0.071
Mass, interior insulation	U- 0.085	U- 0.085
Metal building	U- 0.061	U- 0.061
Metal framed	U- 0.064	U- 0.057
Wood framed and other	U- 0.051	U- 0.051
Walls, Below Grade*		
Mass, exterior insulation	C- 0.119	C- 0.119
Mass, interior insulation	C- 0.063	C- 0.063
Floors		
Mass	U- 0.074	U- 0.064
Metal Joist	U- 0.033	U- 0.033
Wood Joist/Framing	U- 0.033	U- 0.033
Slab-on-Grade Floors		
Unheated slabs	F- 0.540	F- 0.520
Heated slabs	F- 0.580	F- 0.580
Opaque Doors		
Swinging	U- 0.37	U- 0.37
Roll-up or sliding	U- 0.50	U- 0.50

For SI: 1 inch = 25.4 mm. ci – Continuous Insulation

a. When heated slabs are placed below grade, below grade walls must meet the F-factor requirements for perimeter insulation according to the heated slab-on-grade construction.

115.00: continued

TABLE 502.2 - BUILDING ENVELOPE REQUIREMENTS - OPAQUE ASSEMBLIES

Roofs	All Other	Group R	Note: IECC 2009 equivalent
Insulation entirely above deck	R-25 ci	R-25 ci	Zone 7
Metal buildings (with R-5 thermal blocks ^{a,b})	R-13 + R-19	R-19 + R-10	Zone 7
Attic and other	R-38	R-38	Zone 2-7
Walls, Above Grade			
Mass, exterior insulation	R-11.4 ci	R-13.3 ci	Zone 5
Mass, interior insulation	R-13	R-13	N/A
Metal building ^c	R-13 + R-5.6 ci	R-13 + R-5.6 ci	Zone 5-6
Metal framed	R-13 + R-7.5 ci	R-13 + R-7.5 ci	Zone 5-6
Wood framed and other	R-13 + R-7.5	R-13 + R-7.5	Zone 6
Walls, Below Grade^d			
Mass, exterior insulation	R-7.5 ci	R-7.5 ci	Zone 5-6
Mass, interior insulation	R-19	R-19	N/A
Floors			
Mass	R-10 ci	R-12.5 ci	Zone 5
Metal Joist	R-30	R-30	Zone 4-8
Wood Joist/Framing	R-30	R-30	Zone 4-8
Slab-on-Grade Floors			
Unheated slabs	R-10 for 24 in. below	R-15 for 24 in. below	Zone 6
Heated slabs	R-15 for 36 in. + R-5 ci below	R-15 for 36 in. + R-5 ci below	NBI Core Performance Values
Opaque Doors			
Swinging	U – 0.37	U – 0.37	
Roll-up or sliding	R – 4.75	R – 4.75	

For SI: 1 inch = 25.4 mm. ci – Continuous Insulation. NR – No Requirement

- a. Thermal blocks are a minimum R-5 of rigid insulation, which extends one-inch beyond the width of the purlin on each side, perpendicular to the purlin.
- b. The first R-value is for faced fiberglass insulation batts draped over purlins. The second R-value is for unfaced fiberglass insulation batts installed parallel to the purlins. A minimum R-3.5 thermal spacer block is placed above the purlin/batt, and the roof deck is secured to the purlins. Reference: ASHRAE/IESNA 90.1 Table A2.3 including Addendum "G"
- c. The first R-value is for faced fiberglass insulation batts installed perpendicular and compressed between the metal wall panels and the steel framing. The second *rated R-value of insulation* is for insulation installed from the inside, covering the girts. Reference: ASHRAE/IESNA 90.1 Table A3.2 Appendix "G"
- d. When heated slabs are placed below grade, below grade walls must meet the exterior insulation requirements for perimeter insulation according to the heated slab-on-grade construction

502.3.2 and Table 502.3 Replace as follows:

502.3.2 Maximum U-factor and SHGC. For vertical fenestration, the maximum U-factor and solar heat gain coefficient (SHGC) shall be as specified in Table 502.3, which is uniformly set at 0.40. For skylights, the limit is set at 3% of roof area, but can be expanded to 5% of roof area in conjunction with automatic daylighting controls. In all cases, the maximum U-factor and solar heat gain coefficient (SHGC) shall be as specified in Table 502.3.

115.00: continued

TABLE 502.3 - BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

	All
Framing materials other than metal with or without metal reinforcement or cladding	
<i>U</i> -Factor	0.35
Metal framing with or without thermal break	
Curtain Wall/Storefront <i>U</i> -Factor	0.42
Entrance Door <i>U</i> -Factor	0.80
All Other <i>U</i> -Factor ^a	0.45
SHGC-All Frame Types	
SHGC	0.40
Skylights (3% maximum, or 5% maximum with automatic daylighting controls ^b)	
<i>U</i> -Factor	0.45
SHGC	0.40

a. All other includes operable windows, fixed windows and doors other than entrance doors.

b. Automatic daylighting controls shall meet the requirements of section 505.2.2.1.3

502.4.1 and 502.4.2 Replace as follows:

502.4.0 Air Barriers. The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space. An air barrier system shall also be provided for interior separations between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions.

The air barrier shall have the following characteristics:

1. It must be continuous, with all joints made airtight.
2. Materials used for the air barrier system shall have an air permeability not to exceed 0.004 cfm/ft² under a pressure differential of 0.3 in. water (1.57psf) (75 Pa) when tested in accordance with ASTM E 2178. Air barrier materials shall be taped or sealed in accordance with the manufacturer's instructions.
3. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.
4. Air barrier materials shall be maintainable, or, if inaccessible, shall meet the durability requirements for the service life of the envelope assembly.
5. The air barrier material of an envelope assembly shall be joined and sealed in a flexible manner to the air barrier material of adjacent assemblies, allowing for the relative movement of assemblies due to thermal and moisture variations and creep. Connections shall be made between:
 - a. joints around *fenestration* and *door* frames
 - b. junctions between *walls* and foundations, between *walls* at building corners, between *walls* and structural *floors* or *roofs*, and between *walls* and *roof* or *wall* panels
 - c. openings at penetrations of utility services through *roofs*, *walls*, and *floors*
 - d. site-built *fenestration* and *doors*
 - e. building assemblies used as ducts or plenums
 - f. joints, seams, and penetrations of vapor retarders
 - g. all other openings in the *building envelope*.

502.4.0.1 Air Barrier Penetrations. All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made air tight.

502.4.1 Window and Door Assemblies. The air leakage of window, skylight and door assemblies that are part of the building envelope shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and *labeled* and certified by the manufacturer. Window and skylight air leakage shall not exceed 0.2 cfm/ft² at 1.57 pounds per square foot (psf) (75Pa), or 0.3 cfm/ft² at 6.24 psf (300 Pa). Door assembly air leakage shall not exceed 0.3 cfm/ft² for all other products at 1.57 psf (75Pa).

Exceptions:

1. Site-constructed windows and doors that are sealed in accordance with section 502.4.8.
2. Commercial entrance doors covered by section 502.4

115.00: continued

3. Garage doors shall be permitted to use air leakage determined by test at standard test conditions in accordance with ANSI/DASMA 105.

4. Doors and Access Openings to Shafts, Chutes, Stairwells, and Elevator Lobbies. These doors and access openings shall either meet the requirements of 502.4.3 or shall be equipped with weather seals, except weatherseals on elevator lobby doors are not required when a smoke control system is installed.

502.4.2 Curtain Wall, Storefront Glazing and Commercial Entrance Doors. Curtain wall, *storefront* glazing and commercial-glazed swinging entrance doors and revolving doors shall be tested for air leakage at a pressure of at least 1.57 pounds per square foot (psf) (75 Pa) in accordance with ASTM E 283. For curtain walls and *storefront* glazing, the maximum air leakage rate shall be 0.06 cubic foot per minute per square foot (cfm/ft²) (1.1 m³/h × m²) of fenestration area. For commercial glazed swinging entrance doors and revolving doors, the maximum air leakage rate shall be 1.00 cfm/ft² (18.3 m³/h × m²) of door area when tested in accordance with ASTM E 283.

502.4.5 Replace as follows:

502.4.5 Outdoor Air Intakes and Exhaust Openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized, leakage-rated damper with a maximum leakage rate of 4 cfm per square foot (6.8 L/s · C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D. These air tight, operable dampers shall be installed when the air barrier is penetrated by:

1. Fixed open louvers such as in elevator shafts and machine rooms.
2. Mechanical system components which allow infiltration or exfiltration of air when the systems are inactive, such as atrium smoke exhaust systems, elevator shaft smoke relief openings, and other similar elements.

Such dampers shall be set in the closed position and automatically open upon:

1. the activation of any fire alarm initiating device of the building's fire alarm system;
2. the interruption of power to the damper.

Exception. Gravity (nonmotorized) dampers are permitted to be used in buildings less than three stories in height above grade plane.

502.4.7 Replace as follows:

502.4.7 Vestibules. Building entrances that separate *conditioned space* from the exterior shall be protected with an enclosed vestibule, with all *doors* opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior *doors* to open at the same time. Interior and exterior *doors* shall have a minimum distance between them of not less than seven feet when in the closed position. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. The interior and exterior envelope of unconditioned vestibules shall comply with the requirements for a semi-heated space.

Exceptions:

1. *Building entrances* with revolving *doors*.
2. *Doors* not intended to be used as a *building entrance*.
3. *Doors* opening directly from a *dwelling unit*.
4. *Doors* that open directly from a *space* that is less than 3000 ft² in area and is separate from the *building entrance*.
5. *Doors* used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.

502.5 Add sections:

502.5 Vapor Retarders. Class I or II vapor retarders are required on the interior side of walls.

Exceptions:

1. Basement walls.
2. Below grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.

502.5.1 Class III Vapor Retarders. Class III vapor retarders shall be permitted where any one of the conditions in Table 502.5.1 are met.

115.00: continued

TABLE 502.5.1 - CLASS III VAPOR RETARDERS

Climate Zone	Class III vapor retarders permitted for:
5	Vented cladding over OSB Vented cladding over Plywood Vented cladding over Fiberboard Vented cladding over Gypsum Insulated sheathing with R-value \geq R5 over 2x4 wall Insulated sheathing with R-value \geq R7.5 over 2x6 wall

502.5.2 Material Vapor Retarder Class. The vapor retarder class shall be based on the manufacturer's certified testing or a tested assembly. The following shall be deemed to meet the class specified:

Class I: Sheet polyethylene, non-perforated aluminum foil

Class II: Kraft faced fiberglass batts or low perm paint (paint with $0.1 < \text{perm} \leq 1.0$)

Class III: Latex or enamel paint

503.1 Add this note:

NOTE. Compliance path a. (Efficient Mechanical Equipment) in section 507 is not available for equipment installed according to the minimum performance values outlined in section 503.2.3. In this case, compliance can be met with one of the following paths:

b. 507.2.2 Reduced Lighting Power Density

c. 507.2.3 On-Site Supply of Renewable Energy

503.2.1 Replace as follows:

503.2.1 Calculation of Heating and Cooling Loads. Design loads shall be determined in accordance with the procedures described in the ASHRAE/ACCA Standard 183. The design loads shall include an accurate representation of the building envelope, lighting, ventilation and occupancy loads based on the specific design characteristics of the project. Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE *HVAC Systems and Equipment Handbook*. Alternatively, design loads shall be determined by an *approved* equivalent computation procedure, using the design parameters specified in IECC 2009 Chapter 3.

503.2.5.1 Add these two exceptions

5. Building spaces where CO₂ Sensors are inappropriate measures for ventilation needs because of ventilation needs other than occupant requirements.
6. Building spaces where the primary ventilation needs are for process loads.

503.2.9 – 503.2.9.3 Replace as follows:

503.2.9 Mechanical Systems Commissioning and Completion Requirements.

503.2.9.1 System Commissioning. Commissioning is a process that verifies and documents that the selected building systems have been designed, installed, and function according to the owner's project requirements and construction documents. Drawing notes shall require commissioning and completion requirements in accordance with this section. Drawing notes may refer to specifications for further requirements. Copies of all documentation shall be given to the owner. The building official may request commissioning documentation for review purposes. At the time of plan submittal, the building jurisdiction shall be provided, by the submittal authority, a letter of intent to commission the building in accordance with this code.

503.2.9.1.1 Commissioning Plan. A commissioning plan shall include as a minimum the following items:

1. A detailed explanation of the original owner's project requirements,
2. A narrative describing the activities that will be accomplished during each phase of commissioning, including guidance on who accomplishes the activities and how they are completed,
3. Equipment and systems to be tested, including the extent of tests,
4. Functions to be tested (for example calibration, economizer control, *etc.*),
5. Conditions under which the test shall be performed (for example winter and summer design conditions, full outside air, *etc.*), and
6. Measurable criteria for acceptable performance.

115.00: continued

503.2.9.1.2 Systems Adjusting and Balancing. All HVAC systems shall be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within 10% of design rates. Test and balance activities shall include as a minimum the following items:

1. **Air Systems Balancing.** Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the *International Mechanical Code 2009*. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors ten hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than one hp, fan speed shall be adjusted to meet design flow conditions.

Exception. Fans with fan motors of one hp or less.

2. **Hydronic Systems Balancing.** Individual hydronic heating and cooling coils shall be equipped with means for balancing and pressure test connections. Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions. Each hydronic system shall have either the ability to measure pressure across the pump, or test ports at each side of each pump.

Exceptions:

1. Pumps with pump motors of five hp or less.
2. When throttling results in no greater than 5% of the nameplate horsepower draw above that required if the impeller were trimmed.

503.2.9.1.3 Functional Performance Testing.

503.2.9.1.3.1 Equipment Functional Performance Testing. Equipment functional performance testing shall demonstrate the correct installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications. This demonstration is to prove the operation, function, and maintenance serviceability for each of the Commissioned systems. Testing shall include all modes of operation, including:

1. All modes as described in the Sequence of Operation,
2. Redundant or automatic back-up mode,
3. Performance of alarms, and
4. Mode of operation upon a loss of power and restored power.

Exception. Unitary or packaged HVAC equipment listed in Tables 503.2.3(1) through (3) that do not require supply air economizers.

503.2.9.1.3.2 Controls Functional Performance Testing. HVAC control systems shall be tested to document that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with approved plans and specifications.

503.2.9.1.4 Preliminary Commissioning Report. A preliminary report of commissioning test procedures and results shall be completed and provided to the Owner. The report shall be identified as "Preliminary Commissioning Report" and shall identify:

1. Itemization of deficiencies found during testing required by this section which have not been corrected at the time of report preparation and the anticipated date of correction.
2. Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.
3. Climatic conditions required for performance of the deferred tests, and the anticipated date of each deferred test.

503.2.9.2 Acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the building official has received a letter of transmittal from the building owner that states they have received the Preliminary Commissioning Report as required by section 503.2.9.1.4. At the request of the building official, a copy of the Preliminary Commissioning Report shall be made available for review.

503.2.9.3 Completion Requirements. The construction documents shall require that within 90 days after the date of certificate of occupancy, the documents described in this section be provided to the building owner.

503.2.9.3.1 Drawings. Construction documents shall include as a minimum the location and performance data on each piece of equipment.

115.00: continued

503.2.9.3.2 Manuals. An operating manual and a maintenance manual shall be in accordance with industry-accepted standards and shall include, at a minimum, the following:

1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance.
2. Manufacturer's operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.
3. Names and addresses of at least one service agency.
4. HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in programming comments.
5. A complete narrative of how each system is intended to operate, including suggested setpoints.

503.2.9.3.3 System Balancing Report. A written report describing the activities and measurements completed in accordance with section 503.2.9.1.2

503.2.9.3.4 Final Commissioning Report. A complete report of test procedures and results identified as "Final Commissioning Report" shall include:

1. Results of all Functional Performance Tests.
2. Disposition of all deficiencies found during testing, including details of corrective measures used or proposed.
3. All Functional Performance Test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.

Exception. Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

505.2.2.1 and 505.2.2.2 Replace as follows:

505.2.2.1 Automatic Lighting Controls. All commercial buildings shall be equipped with automatic control devices to shut off lighting in compliance with one of the following automatic control technologies:

1. Section 505.2.2.1.1 Occupancy Sensors
2. Section 505.2.2.1.2 Time Clock Controls
3. Section 505.2.2.1.3 Automatic Daylighting Controls

505.2.2.1.1 Occupancy Sensors. Occupancy sensors must be installed in all classrooms, conference/meeting rooms, employee lunch and break rooms, private offices, restrooms, storage rooms and janitorial closets, and other spaces 300 sq. ft. or less enclosed by ceiling height partitions. These automatic control devices shall be installed to automatically turn off lights within 30 minutes of all occupants leaving the space, except spaces with multi-scene control.

505.2.2.1.2 Time Clock Controls. In areas not controlled by occupancy sensors, automatic time switch control devices shall be used. It shall incorporate an override switching device that:

1. Is readily accessible.
2. Is located so that a person using the device can see the lights or the area controlled by that switch, or so that the area being lit is annunciated.
3. Is manually operated.
4. Allows the lighting to remain on for no more than four hours when an override is initiated.
5. Controls an area not exceeding 5,000 square feet (465 m²).

Exceptions:

1. In malls and arcades, auditoriums, single-tenant retail spaces, industrial facilities and arenas, where captive-key override is utilized, override time may exceed two hours.
2. In malls and arcades, auditoriums, single-tenant retail spaces, industrial facilities and arenas, the area controlled may not exceed 20,000 square feet (1860 m²).

505.2.2.1.3 Automatic Daylighting Controls. Automatic controls installed in day lit zones must control lights in the day lit areas separately from the non-day lit areas. Controls for calibration adjustments to the lighting control device shall be readily accessible to authorized personnel. Each daylight control zone shall not exceed 2,500 square feet. Automatic daylighting controls must incorporate an automatic shut-off ability based on time or occupancy in addition to lighting power reduction controls.

115.00: continued

Controls will automatically reduce lighting power in response to available daylight by either one of the following methods:

1. **Continuous Dimming** using dimming ballasts and daylight-sensing automatic controls that are capable of reducing the power of general lighting in the day lit zone continuously to less than 35% of rated power at maximum light output.
2. **Stepped Dimming** using multi-level switching and daylight-sensing controls that are capable of reducing lighting power automatically. The system should provide at least two control channels per zone and be installed in a manner such that at least one control step shall reduce power of general lighting in the daylit zone by 30% to 50% of rated power and another control step that reduces lighting power by 65% to 100%. Stepped dimming control is not appropriate in continuously occupied areas with ceiling heights of 14 feet or lower.

Exception. Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer luminaire are not required to have a separate switch for general area lighting.

505.2.2.3 Retain this section.

505.2.3 Replace as follows:

505.2.3 Additional Controls for Specific Uses.

1. **Display/Accent Lighting.** Display or accent lighting shall have a separate control device.
2. **Case Lighting.** Lighting in cases used for display purposes shall have a separate control device.
3. **Hotel and Motel Guest Room Lighting.** Hotel and motel guest rooms and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.
4. **Task Lighting.** Supplemental task lighting, including permanently installed undershelf or undercabinet lighting, shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible and located so that the occupant can see the controlled lighting.
5. **Nonvisual Lighting.** Lighting for nonvisual applications, such as plant growth and food warming, shall have a separate control device.
6. **Demonstration Lighting.** Lighting equipment that is for sale or for demonstrations in lighting education shall have a separate control device.

Exceptions: 1., 2. and 4. where LED lighting is used no additional control is required.

505.5.2 Insert note as follows:

NOTE. Compliance path b. (Reduced Lighting Power Density) in section 507 is not available for lighting installed according to the values in table 505.5.2. In this case, compliance can be met with one of the following paths:

- a. 507.2.1 Efficient Mechanical Equipment
- c. 507.2.3 On-Site Supply of Renewable Energy

115.00: continued

Replace, but retain notes and exception, Table 505.5.2 with:

TABLE 505.5.2 - INTERIOR LIGHTING POWER ALLOWANCES

LIGHTING POWER DENSITY		
	Whole Building	Space by Space
Building Area Type^a	(W/ft²)	
Active Storage		0.8
Atrium – First Three Floors		0.6
Atrium – Each Additional Floor		0.2
Classroom/lecture/training		1.3
Conference/Meeting/Multipurpose		1.3
Corridor/Transition		0.5
Dressing/Locker/Fitting Room		0.6
Electrical/Mechanical		1.5
Food Preparation		1.2
Inactive Storage		0.3
Laboratory		1.4
Lobby		1.1
Restroom		0.8
Stairway		0.6
Automotive Facility	0.9	
Automotive – Service Repair		0.7
Convention Center	1.2	
Exhibit Space		1.3
Audience/Seating Area		0.9
Courthouse	1.2	
Audience/Seating Area		0.9
Courtroom		1.9
Confinement Cells		0.9
Judges Chambers		1.3
Dining: Bar Lounge/Leisure	1.3	
Lounge/Leisure Dining		1.4
Dining: Cafeteria/Fast Food	1.4	
Dining: Family	1.6	
Dining		1.4
Kitchen		1.2
Dormitory	1.0	
Living Quarters		1.1
Bedroom		0.5
Study Hall		1.4
Exercise Center	1.0	
Dressing/Locker/Fitting Room		0.6
Audience/Seating Area		0.3
Exercise Area		0.9
Exercise Area/Gymnasium		1.4
Gymnasium	1.1	
Dressing/Locker/Fitting Room		0.6
Audience/Seating Area		0.4
Playing Area		1.4
Exercise Area		0.9
Healthcare Clinic	1.0	
Corridors w/patient waiting, exam		1.0
Exam/Treatment		1.5
Emergency		2.7
Public & Staff Lounge		0.8
Hospital/Medical supplies		1.4
Hospital - Nursery		0.6
Nurse station		1.0
Physical therapy		0.9

115.00: continued

TABLE 505.5.2 - INTERIOR LIGHTING POWER ALLOWANCES - continued

LIGHTING POWER DENSITY		
Building Area Type*	Whole Building	Space by Space
	(W/ft ²)	
Patient Room		0.7
Pharmacy		1.2
Hospital/Radiology		0.4
Operating Room		2.2
Recovery		0.8
Active storage		0.9
Laundry-Washing		0.6
Hospital	1.2	
Hotel	1.0	
Dining Area		1.3
Guest quarters		1.1
Reception/Waiting		2.5
Lobby		1.1
Library	1.3	
Library-Audio Visual		0.7
Stacks		1.7
Card File & Cataloging		1.1
Reading Area		1.2
Manufacturing Facility	1.3	
Low bay (< 25 ft Floor to Ceiling Height)		1.2
High bay (>25 ft Floor to Ceiling Height)		1.7
Detailed Manufacturing		2.1
Equipment Room		1.2
Control Room		0.5
Motel	1.0	
Dining Area		1.2
Guest quarters		1.1
Reception/Waiting		2.1
Motion Picture Theater	1.2	
Audience/Seating Area		1.2
Lobby		1.0
Multi-Family	0.7	
Museum	1.1	
Active Storage		0.8
General exhibition		1.0
Restoration		1.7
Bank/Office – banking activity area		1.5
Office	0.9	
Enclosed		1.0
Open Plan		1.0
Parking Garage	0.3	
Penitentiary	1.0	
Performing Arts Theater	1.6	
Audience/Seating Area		2.6
Lobby		3.3
Dressing/Locker/Fitting Room		1.1
Police Stations	1.0	
Fire Stations	0.8	
Fire Station Engine Room		0.8
Sleeping Quarters		0.3
Audience/Seating Area		0.8
Police Station Laboratory		1.4
Post Office	1.1	
Sorting Area		1.2

115.00: continued

TABLE 505.5.2 - INTERIOR LIGHTING POWER ALLOWANCES - continued

LIGHTING POWER DENSITY		
Building Area Type ^a	Whole Building	Space by Space
	(W/ft ²)	
Lobby		1.0
Religious Buildings	1.3	
Lobby		1.7
Worship/Pulpit/Choir		2.4
Retail^b	1.3	
Department Store Sales Area		1.3
Specialty Store Sales Area		1.8
Fine Merchandise Sales Area		2.9
Supermarket Sales Area		1.3
Personal Services Sales Area		1.3
Mass Merchandising Sales Area		1.3
Mall Concourse		1.7
School/University	1.2	
Classroom		1.3
Audience		0.7
Dining		1.1
Office		1.1
Corridor		0.5
Storage		0.5
Laboratory		1.1
Sports Arena	1.1	
Ring Sports Arena		2.7
Court Sports Arena		2.3
Indoor Playing Field Arena		1.4
Town Hall	1.1	
Transportation	1.0	
Dining Area		2.1
Baggage Area		1.0
Airport - Concourse		0.6
Terminal - Ticket Counter		1.5
Reception/Waiting		0.5
Warehouse	0.8	
Fine Material		1.4
Medium/Bulky Material		0.9
Workshop	1.4	

506 Replace as follows:

SECTION 506: TOTAL BUILDING PERFORMANCE

As referenced in section 501.1, buildings establishing compliance with this code through total building performance shall be designed to achieve energy use per square foot equal to at least 20% below the energy requirements of *ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except for Low-Rise Residential Buildings*, Appendix G, measured by industry-accepted energy modeling.

507 Add section as follows:

SECTION 507: ALTERNATIVE PRESCRIPTIVE COMPLIANCE PACKAGES

507.1 Requirements. Buildings complying with the prescriptive option of section 501.4.1 shall meet the requirements of any one of the following sections:

- a. 507.2.1 Efficient Mechanical Equipment
- b. 507.2.2 Reduced Lighting Power Density
- c. 507.2.3 On-Site Supply of Renewable Energy

115.00: continued

507.2.1 Efficient Mechanical Equipment. This mechanical alternative compliance option is intended to allow the builder to meet the requirements of section 507 by choosing to install efficient mechanical equipment. Section 507.2.1 does not replace the requirements in section 503, but is one of several optional compliance packages.

Mechanical equipment choices that fulfill requirements for section 507.2.1 shall comply with the following:

1. Package unitary equipment shall meet the minimum efficiency requirements in Tables 507.2.1(1) and 507.2.1(2);
2. Package Terminal Air Conditioners and Heat Pumps shall meet the minimum efficiency requirements in Table 507.2.1(3);
3. Warm air furnaces and combination warm air furnaces / air conditioning units shall meet the minimum efficiency requirements in Table 507.2.1(4);
4. Boilers shall meet the minimum efficiency requirements in Table 507.2.1(5);
5. Electric chillers shall meet the energy efficiency requirements in Table 507.2.1(6);
6. Absorption chillers shall meet the minimum efficiency requirements in Table 507.2.1(7).

**TABLE 507.2.1(1) UNITARY AIR CONDITIONERS AND CONDENSING UNITS,
ELECTRICALLY OPERATED, EFFICIENCY REQUIREMENTS**

Equipment Type	Size Category	Subcategory or Rating Condition	Minimum Efficiency ^a
Air conditioners, Air cooled	< 65,000 Btu/h	Split system	15.0 SEER 12.5 EER
		Single package	15.0 SEER 12.0 EER
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split system and single package	11.5 EER ^b 11.9 IPLV ^b
	≥ 135,000 Btu/h and < 240,000 Btu/h	Split system and single package	11.5 EER ^b 11.9 IPLV ^b
	≥ 240,000 Btu/h and < 760,000 Btu/h	Split system and single package	10.5 EER ^b 10.9 IPLV ^b
	≥ 760,000 Btu/h		9.7 EER ^b 11.0 IPLV ^b
Air conditioners, Water and evaporatively cooled		Split system and single package	14.0 EER

For SI: 1 British thermal unit per hour = 0.2931 W.

a. IPLVs are only applicable to equipment with capacity modulation.

b. Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

115.00: continued

TABLE 507.2.1(2) UNITARY AND APPLIED HEAT PUMPS, ELECTRICALLY OPERATED, EFFICIENCY REQUIREMENTS

Equipment Type	Size Category	Subcategory or Rating Condition	Minimum Efficiency ^a
Air cooled (Cooling mode)	< 65,000 Btu/h	Split system	15.0 SEER 12.5 EER
		Single package	15.0 SEER 12.0 EER
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split system and single package	11.5 EER ^b 11.9 IPLV ^b
	≥ 135,000 Btu/h and < 240,000 Btu/h	Split system and single package	11.5 EER ^b 11.9 IPLV ^b
	≥ 240,000 Btu/h	Split system and single package	10.5 EER ^b 10.9 IPLV ^b
Water source (Cooling mode)	< 135,000 Btu/h	85°F entering water	14.0 EER
Air cooled (Heating mode)	< 65,000 Btu/h (Cooling capacity)	Split system	8.5 HSPF
		Single package	8.0 HSPF
	≥ 65,000 Btu/h and < 135,000 Btu/h (Cooling capacity)	47°F db/43°F wb outdoor air	3.4 COP
		77°F db/15°F wb outdoor air	2.4 COP
	≥ 135,000 Btu/h (Cooling capacity)	47°F db/43°F wb outdoor air	3.1 COP
		77°F db/15°F wb outdoor air	2.1 COP
Water source (Heating mode)	< 135,000 Btu/h (Cooling capacity)	70°F entering water	4.6 COP

For SI: °C = [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W. db = dry-bulb temperature, °F; wb = wet-bulb temperature, °F

a. IPLVs and Part load rating conditions are only applicable to equipment with capacity modulation.

b. Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

TABLE 507.2.1(3) PACKAGED TERMINAL AIR CONDITIONERS AND PACKAGED TERMINAL HEAT PUMPS

Equipment Type	Size Category	Minimum Efficiency
Air conditioners	< 7,000 Btu / h	11.9 EER
& Heat Pumps (Cooling Mode)	7,000 Btu / h and < 10,000 Btu / h	11.3 EER
	10,000 Btu / h and < 13,000 Btu / h	10.7 EER
	≥ 13,000 Btu / h	9.5 EER

Note. Replacement units must be factory labeled as follows: "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches (406 mm) high and less than 42 inches (1067 mm) wide.

115.00: continued

TABLE 507.2.1(4) WARM AIR FURNACES AND COMBINATION WARM AIR FURNACES/AIR-CONDITIONING UNITS, WARM AIR DUCT FURNACES AND UNIT HEATERS, EFFICIENCY REQUIREMENTS

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
Warm air furnaces, gas fired	< 225,000 Btu/h	-	90% AFUE or 90% <i>E_t</i>	DOE 10 CFR Part 430 or ANSI Z21.47
	≥ 225,000 Btu/h	Maximum capacity	90% <i>E_c</i> , note 1.	ANSI Z21.47
Warm air furnaces, oil fired	< 225,000 Btu/h	-	85% AFUE or 85% <i>E_t</i>	DOE 10 CFR Part 430 or UL727
	≥ 225,000 Btu/h	Maximum capacity	85 % <i>E_t</i> , note 1.	UL 727
Warm air duct furnaces, gas fired	All capacities	Maximum capacity	90% <i>E_c</i>	ANSI Z83.8
Warm air unit heaters, gas fired	All capacities	Maximum capacity	90% <i>E_c</i>	ANSI Z83.8
Warm air unit heaters, oil fired	All capacities	Maximum capacity	90% <i>E_c</i>	UL 731

For SI: 1 British thermal unit per hour = 0.2931 W.

1. Units must also include an IID (intermittent ignition device), have jackets not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

Where there are two ratings, units not covered by the National Appliance Energy Conservation Act of 1987 (NAECA) (three-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW]) shall comply with either rating.

E_t = Thermal efficiency

E_c = Combustion efficiency (100% less flue losses)

Efficient furnace fan: All fossil fuel furnaces in zones 3 to 8 shall have a furnace electricity ratio not greater than 2% and shall include a manufacturer's designation of the furnace electricity ratio.

TABLE 507.2.1(5) BOILER, EFFICIENCY REQUIREMENTS

Equipment Type	Size Category	Minimum Efficiency
Gas Hot Water	< 300,000 Btu/h	90% <i>E_t</i>
	> 300,000 Btu/h and < 2.5 mBtu/h	89% <i>E_t</i>
Gas Steam	< 300,000 Btu/h	89% <i>E_t</i>
	≥ 300,000 Btu/h	89% <i>E_t</i>
Oil	< 300,000 Btu/h	90% <i>E_t</i>
	≥ 300,000 Btu/h	89% <i>E_t</i>
<i>E_t</i> = thermal efficiency		

115.00: continued

TABLE 507.2.1(5) CHILLERS - EFFICIENCY REQUIREMENTS

Equipment Type	Size Category	Required Efficiency- Chillers		Optional Compliance Path - Required Efficiency - Chillers With VSD	
		Full Load (KW/ Ton)	IPLV (KW/ Ton)	Full Load (KW/Ton)	IPLV (KW/ Ton)
Air Cooled w/ Condenser	All	≤1.2	≤1.0	N/A	N/A
Air Cooled w/o Condenser	All	≤1.08	≤1.08	N/A	N/A
Water Cooled, Reciprocating	All	≤0.840	≤0.630	N/A	N/A
Water Cooled, Rotary Screw and Scroll	< 90 tons	≤0.780	≤0.600	N/A	N/A
	90 tons and < 150 tons	≤0.730	≤0.550	N/A	N/A
	150 tons and < 300 tons	≤0.610	≤0.510	N/A	N/A
	≥300 tons	≤0.600	≤0.490	N/A	N/A
Water Cooled, Centrifugal	< 150 tons	≤0.610	≤0.620	≤0.630	≤0.400
	150 tons and < 300 tons	≤0.590	≤0.560	≤0.600	≤0.400
	300 tons and < 600 tons	≤0.570	≤0.510	≤0.580	≤0.400
	≥ 600 tons	≤0.550	≤0.510	≤0.550	≤0.400

Notes. Compliance with full load efficiency numbers and IPLV numbers are both required.

Only Chillers with Variable Speed Drives(VSD) may use the optional compliance path here for chiller efficiency.

TABLE 507.2.1(6) ABSORPTION CHILLERS - EFFICIENCY REQUIREMENTS

Equipment Type	Required Efficiency Full Load COP (IPLV)
Air Cooled, Single Effect	0.60, but only allowed in heat recovery applications
Water Cooled, Single Effect	0.70, but only allowed in heat recovery applications
Double Effect - Direct Fired	1.0 (1.05)
Double Effect - Indirect Fired	1.20

507.2.2 Reduced Lighting Power Density. Whole Building Lighting Power Density (Watts/ft²) must be reduced by at least 10% from the values in Table 505.5.2, or as shown in Table 507.2.2.

507.2.2.1 Automatic Daylighting Controls. Automatic daylighting controls shall be installed in the daylight zone and shall meet the requirements of 505.2.2.1.3.

115.00: continued

TABLE 507.2.2 REDUCED INTERIOR LIGHTING POWER ALLOWANCES
LIGHTING POWER DENSITY

Building Area Type^a	Reduced whole building (W/ft²)
Automotive Facility	0.8
Convention Center	1.1
Court House	1.1
Dining: Bar Lounge/Leisure	1.2
Dining: Cafeteria/Fast Food	1.3
Dining: Family	1.4
Dormitory	0.9
Exercise Center	0.9
Fire Station	0.7
Gymnasium	1.0
Healthcare-Clinic	0.9
Hospital	1.1
Hotel	0.9
Library	1.2
Manufacturing Facility	1.2
Motel	0.9
Motion Picture Theater	1.1
Multi-Family	0.6
Museum	1.0
Office	0.8
Parking Garage	0.3
Penitentiary	0.9
Performing Arts Theater	1.4
Police	0.9
Post Office	1.0
Religious Building	1.2
Retail ^b	1.2
School/University	1.1
Sports Arena	1.0
Town Hall	1.0
Transportation	0.9
Warehouse	0.7
Workshop	1.3

a. See IECC 2009 Table 505.2 for notes and exception.

507.2.3 On-site Supply of Renewable Energy. The building or surrounding property shall incorporate an on-site renewable energy system that supplies 3% or more of total building electrical loads. On-site power generation using nonrenewable resources does not meet this requirement.

The jurisdiction shall be provided with an energy analysis that documents the renewable energy contribution to the building or a calculation demonstrating that the on-site supply of renewable energy:

1. Is capable of providing at least 3% of the total energy load of the building, or
2. Has an installed maximum generating capacity equal to or greater than 0.50 watts per square foot of usable floor space.

Chapter 6 Retain this chapter.

NON-TEXT PAGE

1866 011

BAC LIBRARY



73710

Massachusetts state building code.
Massachusetts. State Board of
Building Regulation and Standards.
Basic/Commercial. A1 A3 2010

REF KFM2859.A1 A3 2010

DEMCO

